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Examination of Locus of Control, Health Locus of Control and Their Key Predictors in Urban vs. Rural Populations

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EXAMINATION OF LOCUS OF CONTROL, HEALTH LOCUS OF CONTROL AND THEIR KEY PREDICTORS IN URBAN vs. RURAL POPULATIONS

by

Mark T. Zimmerman

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Acknowledgments

Completing this dissertation is an accomplishment that twenty years ago I would have thought to be impossible. In elementary school I was labeled learning disabled and that label followed me all the way to my high school graduation. On the day of my high school graduation I made the decision that furthering my education was something that I had no interest in.

After high school graduation I spent three years working various jobs that required very difficult manual labor. Two of my closest high school friends offered me the option to move with them to a college town to begin taking college classes. I accepted and it has proven to be one of the best decisions I have ever made. The first few years in college were less than productive, but eventually I found the focus that was necessary to become a successful student. I developed an appreciation for knowledge and learned to cherish the learning process. Now with the completion of this dissertation and the Doctor of Education degree I am pleased to find myself in the position of having two completed doctorate degrees.

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Now that this dissertation is complete I think it is important for me to put on the record that I was humbled by this process. Maintaining a full time career and concurrently working on a dissertation is not for the faint of heart. I was expecting to put

a substantial amount of work into this project but I found that the level of self-regulation that is required to complete a dissertation is astounding. The level of commitment that was required for completion has made the process that much more rewarding and I am thrilled to have had this experience.

Abstract

Mark T. Zimmerman. Ed.D. The University of Memphis. December 2010. Examination of locus of control, health locus of control, and their key predictors in urban vs. rural populations. Major Professor: Deborah Lowther, Ph.D.

The purpose of this study was to utilize a quantitative survey methodology, which explored the characteristics of locus of control and health locus of control between a rural Tennessee population and an urban Tennessee population using scores from Rotter's Internal-External Locus of Control Scale (LOC) and the Multidimensional Health Locus of Control Scale (HLOC). The results of this study help bridge the gap in the limited studies available that use LOC and the HLOC to explore the differences between the two populations. Demographic information on the survey (age, gender, race, annual household income, size of household, level of education, spirituality) and the scores from the LOC and the HLOC were investigated to find the predictors of locus of control and health locus of control for the samples. A total of 156 people completed the voluntary survey, 79 reported rural residence and 77 reported urban residence. Results showed a relationship between locus of control scores and health locus of control scores, $r = -0.258$, $p < 0.01$. The rural group did not score significantly different than the urban group on health locus of control. For the entire population, gender ($p = .010$) and spirituality ($p = .006$) were the only significant predictors of HLOC. For the rural participants, race ($p = .004$), income ($p = .014$), and level of education ($p = .032$) were significant predictors of HLOC. For the urban population gender was the only significant predictor of HLOC ($p = .013$). The rural population did not have any common predictors for locus of control and health locus of control. The urban population did have gender as a common predictor for

locus of control and health locus of control. The current study did not show the strong differences that were expected between these two populations. General LOC scores and HLOC scores were similar regardless of geographic differences. However, through an analysis of possible factors that could contribute to LOC and HLOC scores this study gives insight into the specific needs of the different populations so that interventions may be tailored to the specific needs of the people.

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CHAPTER 1

INTRODUCTION

Problem Statement

As America's metropolitan areas continue to grow and rural communities become even further overlooked we are becoming increasingly aware of the differences in needs between urban and rural communities (Ashley & Maxwell, 2001; Irwin et al., 2009; Jensen, 2008; Sharp & Clark, 2008). A variety of studies have been conducted concerning the differences in needs between urban and rural populations in the areas of healthcare (Heckman, Kelly, & Somlai, 1998; Schultz, 1997), crime (Logan, Walker, & Leukefeld, 2001; Myers & Talarico, 1986), education (Arcury & Christianson, 1993; Theobald & Nachtigal, 1995) and poverty (Amato & Zuo, 1992; Asra, 1999). These studies have shown measurable differences in their respective areas, but few studies have attempted to explore the causes of these differences by comparing the two populations in the context of socially learned behavior. Within the construct of social learning theory, the topics of locus of control and health locus of control have been extensively studied. However, there is a notable lack of research on these topics as they relate to the differences between urban and rural populations. The majority of the research that is available in this area has been conducted in urban populations. On rare occasions rural areas have been isolated in a study, but there is very seldom a comparison made between the two very distinct populations.

Overview

Locus of control has been used in many previous studies to explain a propensity toward certain beliefs and behaviors (Esperate, Feng, Zhang, & Owen, 2007). It has sparked the interest of researchers in the fields of clinical psychology, education, business, and healthcare. In the field of clinical psychology, locus of control has been used to better understand the treatment needs of people who suffer from various phobias (Davidson, Boyle, & Lauchlan, 2008). In the field of education, locus of control has been used to predict level of adjustment in college freshmen (Mooney, 1991). In the field of business, locus of control has been used to analyze the relationships between perception of control and work outcomes (Ng, Sorensen, & Eby, 2006). In the field of healthcare locus of control has been used to create the Multidimensional Health Locus of Control Scale. These scales have been developed to test beliefs that the source of reinforcements for health-related behaviors is primarily internal, a matter of chance, or under the control of powerful others (Walston, Walston, & DeVellis, 1978).

This study extends previous research that examined locus of control differences between urban and rural populations (Zimmerman, 2009). The findings of Zimmerman (2009) revealed that the rural group did not score significantly different from the urban group on Rotter's locus of control questionnaire. These findings suggest that the locus of control for the rural group was neither more internal nor more external than the urban group that was tested

This proposed study will investigate the relationship between locus of control and health locus of control within an urban area and a rural area in west Tennessee. A further

investigation will be made into the differences in internal verses external locus of control and internal verses external health locus of control between the two populations. The comparison will be made using Rotter's (1966) Internal-External Locus of Control Scale and Walston, Walston, and DeVellis' (1978) Multidimensional Health Locus of Control Scale. In addition this study will investigate possible predictors of locus of control and health locus of control that exists within these two populations. The areas of age, gender, level of education, size of household, yearly household income and spirituality will be used as possible predictors of locus of control and health locus of control. A comparison will be made between the urban and rural populations to determine similarities and differences of predictors of health locus of control.

Use of Rotter's Internal-External Locus of Control Scale

Rotter's Internal-External Locus of Control Scale (Rotter's Scale) has been used extensively in social learning research concerning control for more than 40 years. Twenge, Zhang, and Im (2004) used Rotter's scale to conduct a meta-analysis on the difference in college students' and children's locus of control scores between 1960 and 2002. The findings showed that as time goes on the college students and the children scored more external on Rotter's Scale (Twenge et al., 2004). Trent, Lee, and Owens-Nicholson (2006) used Rotter's scale to show that students of color are more likely to borrow greater amounts of money for higher education when their Rotter's Scale scores are more internal. Smith, Hume, Zimmermann, and Davis (2007) used Rotter's scale to examine the global relevance of the locus of control variable to ethical decision making of university students in thirteen universities from eight countries. Results indicated

support for the global significance of locus of control differences in the ethical responses of the students (Smith et al., 2007).

Use of the Multidimensional Health Locus of Control Scale

In the late 1970s the first health locus of control scale was developed by Wallston, Wallston and DeVellis and was designed to be used in the context of Rotter's social learning theory (Wallston, 1991). Wojciak, Mojs, and Cierpialkowska (2009) used the Multidimensional Health Locus of control Scale to study women with anorexia. The findings showed that there was a statistically significant difference between anorexic and non-anorexic women in the area of health locus of control (Wojciak et al., 2009). The results of Wojciak et al. (2009) showed that the non-anorexic group scored more internal than the anorexic group. Acharya and Sangam (2008) used the Multidimensional Health Locus of control Scale to assess the relationship between Oral Health-Related Quality of Life (OHRQoL) and Health Locus of Control (HLC) among students in an Indian dental school. Analysis between the Oral Health-Related Quality of Life scores and the Multidimensional Health Locus of control Scale scores showed statistically significant relationships (Acharya & Sangam, 2008). As the Oral Health-Related Quality of Life scores increased the Multidimensional Health Locus of control Scale scores became more internal (Acharya & Sangam, 2008). Chung, Preveza, Papandreou, and Prevezas (2006) examined whether locus of control was associated with spinal cord injury posttraumatic stress disorders. The study concluded that the younger and older spinal cord injury patients' locus of control was negatively correlated with posttraumatic symptoms (Chung et al., 2006). The study revealed that as the patient's symptoms increased their

Multidimensional Health Locus of control Scale scores became more external (Chung et al., 2006).

Significance of the Study

This study proposes to examine the differences in locus of control and health locus of control between an urban and rural population. A greater understanding of urban versus rural locus of control and health locus of control could be a benefit to the field of health education. Understanding the health beliefs of a target population is a prerequisite for effective health education (Kuwahara et al., 2004). Health locus of control is one of the most widely measured parameters of health beliefs and is often used for the planning of health education programs (Kuwahara et al., 2004). In the field of healthcare this information could be used to implement new public health programs that increase participation and address the specific needs of rural and urban populations.

Research Questions

1. Is there a relationship between locus of control and health locus of control and does the relationship differ between rural populations and urban populations?
2. Is there a significant difference in health locus of control between rural populations and urban populations?
3. What are the predictors of health locus of control for the population as a whole (internal versus external)?
4. What are the predictors of health locus of control for a rural population (internal versus external)?

5. What are the predictors of health locus of control for an urban population (internal versus external)?

6. Do locus of control and health locus of control have common predictors for the rural population?

7. Do locus of control and health locus of control have common predictors for the urban population?

CHAPTER 2

LITERATURE REVIEW

Introduction

In order to examine locus of control and health locus of control as it relates to a person's geographical context and personal characteristics, the literature review focuses on three primary themes. First is an overview of social learning theory, as it is the foundational construct of locus of control. Next, an introduction to locus of control is given along with a discussion of various aspects of locus of control; including Rotter's Internal-External Locus of Control Scale. Included is a discussion on the most common predictors of locus of control and the differences in locus of control between urban and rural populations. Finally, an introduction to health locus of control is given along with a discussion of various aspects of health locus of control; including the Health Locus of Control Scale. Included is a discussion on the most common predictors of health locus of control and the differences in locus of control between urban and rural populations.

Social Learning Theory

Social learning theory assumes that people are social beings that pay attention to the environment around them and react to the stimuli in the environment (Hogben & Dyrne, 1998). The first concepts surrounding the social learning theory were developed as an attempt by Robert Sears and other researchers to thoroughly explain human behavior by combining the psychoanalytic theory and the stimulus-response learning theory (Grusec, 1992). Psychoanalytic theory seeks to find connections between the unconscious components of a person's mental processes. Stimulus-response learning

theory proposes that behavior, or the response, can be affected by changing the stimulus. From this development modern social learning theory was cultivated in the mid-1950s, initially introduced by Rotter, but with major contributions soon after by Bandura and Mischl (Hogben & Dyrne, 1998). What clearly makes social learning theory distinct from traditional classical or operant learning theories is its emphasis on the use of personality and environmental constructs to make predictions about behavior (Hogben & Dyrne, 1998). Classical or operant learning theories do not take personality or the environment into account when making predictions about behavior.

At the time of its development researchers were interested in incorporating a cognitive approach to the study of behavior. Social learning theorists tend to focus on molar units of behavior that emphasize cognition and the interaction between cognitions and environmental contingencies (Hogben & Dyrne, 1998). Rotter (1975) described social learning theory as a molar theory of personality that attempts to integrate two diverse but significant trends in American psychology – the stimulus response, or reinforcement theories and the cognitive or field theories.

Behaviorists had already completed thorough studies on how rewards change behavior (Pavlov, 1906; Skinner, 1935; Watson, 1916), but up until the development of Rotter's social learning theory very little had been done concerning the interaction between behavior and cognition. The cognitive elements are introduced into social learning theory by way of individually generated expectancies about rewards, with the expectancies acting as reinforcers of behavior (Hogben & Dyrne, 1998). Rotter viewed behavior as goal directed and he emphasized expectations of rewards and perceived

values of rewards as the basis for modeling one's behavior on that of others (Hogben & Dyrne, 1998).

In social learning theory, a behavior potential has three major determinants; expectancy, value of the reinforcement, and the psychological situation (Rotter, 1975). "In its most basic form, the general formula for behavior is that the potential for a behavior to occur in any specific psychological situation is a function of the expectancy that the behavior will lead to a particular reinforcement in that situation and the value of that reinforcement" (Rotter, 1975, p. 57). Expectancies in any given situation are determined not only by specific experiences in that situation but also, to some varying extent, by experiences in other situations that the individual perceives as similar (Rotter, 1975). Social learning theorist hypothesize that when a person perceives two situations as similar, then his expectancies for a particular type of reinforcement, or class of reinforcements, will generalize from one situation to another (Rotter, 1975).

Houts and Kassab (1997) describe reinforcement value as the value obtained from the specific behavior that is expected to follow positive or negative rewards. In social learning theory it is presumed that the relationship between reinforcement value and behavior can be determined only by introducing the concept of the individual's expectancy, on the basis of past history, that the given behavior will actually lead to a satisfying outcome rather than to punishment, failure or negative reinforcement (Rotter, 1960). Social learning gives an explanation for behavior in the absence of quantifiable rewards by making inferences about cognitions involving either expected rewards or task difficulty (Hogben & Dyrne, 1998).

Houts and Kassab (1997) state that the third major determinant of a behavior potential, social context, is viewed as the equivalent to the personal or psychological situation. Social learning theorists have hypothesized that the psychological situation operates primarily by providing cues for the subject, which are related to the magnitude of his expectancies for reinforcement for different behaviors (Rotter, 1960). Rotter (1960) found that the psychological situation had an effect on the value of the reinforcement through expectancies for associated or subsequent reinforcements. Adding cognitive elements, such as psychological situation, to the social learning theory adds a degree of complexity to the study and explanation of behavior. Social learning theorists, unlike operant and classical theorists, have to add an assumption about the role of cognition because social behavior can occur without external reinforcement (Hogben & Dyrne, 1998).

Locus of Control

Rotter's (1966) social learning theory was comprised of three components: the locus of control construct, reinforcement value, and social context. There are two types of locus of control that stemmed from the social learning theory: internal and external control (Rotter, 1975). Locus of control is one's perception, in a given social context and in light of past reinforcements, of the degree to which behavioral outcomes are due to internal or external control (Houts & Kassab, 1997).

> When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of

> powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in external control. If the person believes that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control. (Rotter, 1966, p.1)

An example of external locus of control would be a student who views a good grade in a subject that they don't excel in as lucky despite the fact that the student studied and prepared for the test. An example of internal locus of control would be the same student attributing a good grade to the amount of studying and preparation that was done for the test.

Internal verses external locus of control is used as a variable that refines our predictions of how reinforcements change expectancies (Rotter, 1975). Interest in the internal verses external variables developed because of the persistent observation that increments and decrements in expectancies following reinforcement appeared to vary systematically, depending on the nature of the situation and also as a constant characteristic of the particular person who was being reinforced (Rotter, 1975). Rotter (1975) believed that interest in the concept of internal verses external control must be related to persistent social problems, which in turn are related to the tremendous growth in population, increasing complexity of society, and the subsequent feeling of powerlessness that seems to permeate all levels of society.

Rotter's Internal-External Scale – Validity, Stability, Reliability

By the early 1970s locus of control was becoming an accepted component of the social learning theory. As interest in locus of control increased, a means to identify locus of control became apparent. In response, Rotter began the development of a survey instrument to solicit responses that could infer a person's locus of control.

Rotter's Internal-External (I–E) Locus of Control Scale is a forced choice questionnaire, which has evolved through a series of refinements into a 29-item test that includes six filler items (Rotter, 1975). Rotter's Internal-External Locus of Control Scale has been tested for validity and stability in a limited number of studies. The literature suggests that the tests, conducted by various researchers for validity and stability, all yielded similar results. Marsh and Richards (1986) used an outward bound program, designed to create a more internal orientation in its participants, to test the validity of Rotter's Internal-External Locus of Control Scale. The outward bound program was selected for the validation study because it was specifically designed to alter the internal-external construct and Rotter's internal-external instrument was specifically designed to measure the internal-external construct (Marsh & Richards, 1986). Using a construct validity approach the study provided support for the validity of the Rotter internal-external instrument (Marsh & Richards, 1986).

Zerega, Tseng, and Greever (1976) developed a study that was designed to investigate the test-retest reliability and concurrent validity of Rotter's Internal-External Locus of Control Scale. The study found that Rotter's scale was valid and reliable when compared with the results of the McDonald-Tseng Locus of Control Scale (Zerega et al.,

1976). Layton (1985) administered Rotter's Internal-External Locus of Control Scale to 287 English males on two occasions in order to determine the stability of the scale. He found that the test-retest correlations over lengthy periods of time revealed that Rotter's Internal-External Locus of Control Scale was stable (Layton, 1985). Lange and Tiggemann (1981) used a test-retest format with Australian students in order to determine the reliability of Rotter's Internal-External Locus of Control Scale. Test-retest reliability of the scale was .61 suggesting that it is reliable and stable over a considerable period of time (Lange & Tiggemann, 1981).

Predictors of Locus of Control

Researchers who have incorporated the measure of locus of control into their studies have identified many predictors associated with locus of control, however; the results have been inconsistent. Some of the more common predictors of locus of control include age, gender, race/ethnicity, spirituality/religiosity, socioeconomic status, and geographic construct.

Age

One major question that has dominated the literature on locus of control is whether or not there are age differences or age-related changes in locus of control (Lachman, 1986). However, this question is not easily answered and results have been mixed. The results of 14 different studies concerning age and locus of control show findings that are remarkably inconsistent (Lachman, 1986). Specifically, 5 of the 14 studies showed an increase in locus of control with age, five showed a decrease, and four revealed locus of control to be stable throughout adulthood and later life (Lachman,

1986). The relationship between age and locus of control has primarily been studied in adolescent and geriatric populations. Although there was a large degree of inconsistency in the 14 studies concerning age and locus of control, Lachman's (1986) study did show some consistency in the adolescent and geriatric age ranges.

In a similar study, Backman, O'Malley, and Johnson (1978) measured the locus of control in high school students involved in the Youth in Transition Project to determine if changes occur over a period of time. The results indicated that locus of control became more internal in students from 10th grade to one-year post-high school, with the greatest change occurring between the 10th and 11th grades (Backman et al., 1978). Cairns, McWhirter, Duffy, and Barry (1990) also examined locus of control in a longitudinal study involving high school students over a period of time where the average age during the tests was 17. This study found that over the period of time tested the locus of control of the teenagers became significantly more internal (Cairns et al., 1990). The results from Cairns et al. (1990) suggest that locus of control becomes more internal over very short periods of time for teenagers. The mixed results found in these studies shows a need for further investigation into age as it relates to locus of control. The information gained from these studies indicates that there are possible correlations between age ranges and a person's perception of control, especially in the adolescent and geriatric populations.

Lachman (1986) found that age differences in locus of control can be more clearly and consistently defined with domain-specific measures such as intelligence or health. Within these two domain-specific measures the elderly showed a more external locus of

control than college students (Lachman, 1986). Lacchman's (1986) study is another example of how more specific age ranges can be better predictors of locus of control.

Gender

The relationship between gender and locus of control has also been a frequent topic of research over the past thirty years. The results of the studies that were conducted concerning gender differences and locus of control have varied considerably (Chub, Fertman, & Ross, 1997). Archer and Waterman (1988) put together the results of 22 studies that compared gender differences on several variables including locus of control. In 15 out of the 17 studies that Archer and Waterman reviewed no gender differences were found (Archer & Waterman, 1988). The conclusion of Archer and Waterman's (1988) review was that there was not enough evidence to show that there are gender differences in locus of control.

Conclusions from Maccoby and Jacklin's 1974 landmark review of gender differences in cognition, temperament, and social behavior stated that gender differences in locus of control do exist (Feingold, 1994). The most interesting finding that Maccoby and Jacklin (1974) encountered concerning gender and locus of control is that it varies by age, with a greater internality for males emerging only in the college years.

Race/Ethnicity

Although less popular than the topics of age and gender, race and ethnicity does appear frequently as a predictor of locus of control in many studies. In the mid-70s Tyler and Holsinger (1975) found that rural culturally disadvantaged Native American children had a more external locus of control than the rural Caucasian children who were also

tested. Houts and Kassab (1997) used Rotter's social learning theory to test for differences by race and ethnicity, in fear of crime. Their conclusion was that the research showed major differences by race and ethnicity in the main and interactive effects of the social learning theory variables (Houts & Kassab, 1997). It has been argued that the existence of sufficiently different social learning contexts warrants an assumption that perception of personal control will vary remarkably by ethnicity (Lefcourt & Ladwig, 1965). Inspired by the early work of Lefcourt and Ladwig, Houts and Kassab (1997) have shown that internal-external locus-of-control beliefs about risk of personal victimization are differentiated on the basis of racial identity.

Spirituality

Spirituality has appeared much less frequently than the other predictors of locus of control that have been discussed. A limited number of studies have been conducted on the relationship between spirituality or religiosity and locus of control. Fiori, Hays, and Meador (2004) found that recent evidence indicates that spirituality and religion are associated with both physical and psychological health. Fiori et al. (2004) proposed that some people derive benefits from religion or spirituality where God acts as a mediator, in the sense that trusting in God provides a form of personal control. Fiori et al. (2004) also points out that spirituality can have the opposite affect where it decreases a person's feeling of personal control. Dein and Stygal (1997) found that religion can help or hinder an individual's mental health depending on the individual's attributions. One of the most important ways that a person's religious interpretation or attributions may vary stems from differences in locus of control (Fiori, Brown, Cortina, & Antonucci, 2006). A sense

of control changes the meaning that a person assigns to a life event (Fiori et al., 2006). For example, if a person feels that they had a large amount of control over a life event then it could lead to a more intrinsic value placed on the event. If a person feels that they had no control over the event then they could be more inclined to place a more extrinsic value on the event. Jackson and Coursey (1988) studied a sample of African American Baptists and found that a measure of high God control was correlated with a high measure of internal locus of control.

Socioeconomic Status

Sumarwan and Hira (1993) conducted a research project titled "Family Resource Utilization as a Factor in Determining Economic Well-Being of Rural Families." The study found that household income and household net worth had an indirect effect on satisfaction because of their relationship with locus of control (Sumarwan and Hira, 1993). Husaini and Neff (1981) evaluated data that was collected concerning life change events and locus of control in 713 rural Tennessee adults. Husaini and Neff (1981) found that locus of control was positively related to social class. The data suggested that observed social class differences may arise from the differences in coping styles between certain social classes (Husaini & Neff, 1981).

Shrauger and Silverman (1971) included socioeconomic status into their study concerning the relationship of religious background and participation to locus of control. The study found that there was evidence that suggested that people from minority groups and lower socioeconomic groups perceive a more external locus of control (Shrauger & Silverman, 1971).

Geographic Construct

As seen, studies evaluating internal versus external locus of control have shown some success in testing individual differences and predicting behavior in a variety of subgroups (Rotter, 1990).

Of particular interest for this study, is examining variations of locus of control on the basis of geographic construct. Urban and rural populations have often shown distinctly different needs in areas such as education and healthcare. The information that an urban-rural locus of control study yields, concerning individual differences and behavior predictions, can be used to assess the special needs of these populations.

The definitions of urban and rural are important yet contested geographic constructs routinely used by the public, policy makers, and academics (Berry, Markee, Fowler, & Giewant, 2000). As a dualism, urban and rural are commonly viewed as a continuum of places, processes or people, the most urban situated at one end of a scale and the most rural at the other end with relative degrees of rurality and urbanness between the two ends of the scale (Berry et al., 2000). In many cases quantitative definitions fail to adequately describe the differences between urban and rural areas. However, some of the more current qualitative definitions used in research that include occupational, ecological, and socio-cultural information are too multidimensional to ensure accuracy in choosing what is urban and what is rural.

A search for research literature concerning measurable differences of locus of control between urban and rural populations yielded very little results. Morrow (1989) conducted a locus of control study on rural and urban gifted high school students in the

state of Nebraska. The results indicated that urban and rural gifted students are equally willing to claim responsibility or control of desirable events (Morrow, 1989). The only significant difference that the study produced between the urban and rural gifted students was concerning the willingness to accept responsibility or control for failures (Morrow, 1989). The gifted high school students from rural areas are more inclined to accept responsibility for failures than those from urban areas (Morrow, 1989). Zimbelman (1987) administered the Norwicki-Strickland Locus of Control Scale to 92 rural and 98 metropolitan graders in South Dakota to determine whether there was a difference between the two populations. Zimbelman (1987) found that there was no significant difference between rural and urban subjects on locus of control scale scores.

Witt (1989) conducted a study that included 136 undergraduates completing Rotter's Internal-External Locus of Control Scale. On the survey the students were asked to categorize their hometown by describing it as urban or non-urban. The data that was collected indicated that the subjects that were from non-urban areas had a more internal locus of control orientation (Witt, 1989). This would suggest that urban subjects perceive that they have less control over their own lives (Witt, 1989). Zimmerman (2009) used Rotter's Internal-External Locus of Control Scale to examined differences in scores between a rural and an urban population in west Tennessee. The findings of Zimmerman's (2009) study did not demonstrate a significant difference in scores between the two populations.

The remainder of the literature that was found concerning differences in geographical location did not include the study of locus of control. However, these

studies do show a measurable difference in outcomes and behaviors between urban and rural populations. Measurable differences in outcomes and behaviors between urban and rural populations in non-locus of control studies (Amato, 1981; Duelberg, 1992; Greenberg, 1987; Howat, Vietch & Cairns, 2006; Stebley, 1987) does not always equate directly to a difference in locus of control between the two populations. However, they do raise interesting questions on causality of the measurable differences. Social learning theorists hypothesize that the differences in learning environments can account for the differences in outcomes and behaviors between the two populations. According to the social learning theory it is these vastly different social learning environments that also contribute to differences in locus of control (Hogben & Dyrne, 1998).

A good example of two different social learning environments producing differences in behaviors is the comparison that is often made by psychologists and sociologists about the differences in behaviors and attitudes between urban and rural populations concerning the belief that rural populations exhibit more altruistic behavior than urban populations. Studies have indicated that rates of helping tend to be higher in American rural areas than large American cities (Amato, 1981). Stebley (1987) found that the difference in helping behavior was not as much a function of the people as it was of the location. The statement "Country people are more helpful than city people" is not supported by the data (Stebley, 1987, p. 364). The data does suggest that a person is more likely to be helped in a rural area than in an urban area (Stebley, 1987). This study is an example of a measurable difference in behavior due to an interaction with the environment.

In looking at other examples of different social learning environments producing differences in behaviors, Greenberg (1987) found that rural residents in the 1950s were more likely to practice primary health prevention behaviors than urban residents. Between 1950 and 1980 this difference between rural and urban residence seemed to diminish (Duelberg, 1992). A study by Duelberg (1992) using the 1985 National Health Interview Survey examined possible difference between rural and urban residents concerning their health behavior. Duelberg's (1992) study did show geographical differences concerning primary and secondary preventative health behavior. The rural areas tested showed slightly higher levels of primary prevention behaviors (Duelberg, 1992). Urban residence showed no effect on primary health behaviors such as exercise, a negative effect on smoking and a positive effect on favorable weight (Duelberg, 1992). Urban residence also had a positive effect on secondary health prevention behaviors such as breast examinations (Duelberg, 1992).

Howat et al. (2006) conducted a descriptive study that compared health attitudes of urban and rural oncology patients. Previous studies have shown that there is a measurable difference in health beliefs and values in rural populations (Howat et al., 2006). This study was consistent with previous studies and did reveal significant differences in health attitudes between urban and rural Australian populations (Howat et al., 2006). More specifically, using the Health Locus of Control Scale, this study showed that rural patients scored significantly higher for internal beliefs (Howat et al., 2006).

Health Locus of Control

The argument over whether Americans do or do not value their health underlines the common assumption that people will only engage in behavior that they believe will improve the probability of achieving their valued goals (Smith & Wallston, 1992). The assumption is the foundation of social learning theory, which incorporates two key constructs in assessing one's behavior potential- expectancy beliefs and the value of the result (Smith & Wallston, 1992). Attempting to understand why individuals engage, or fail to engage, in actions which promote or threaten their health status has long been of concern to health psychologists (Rodin & Salovey, 1989).

A person's perception of control over their own health status, regardless of the truth of those perceptions, is generally believed to be a major determinant not only of their health-related behavior, but, ultimately, of whether they stay healthy or become ill (Wallston, 1992). The focus of most of the work in perceived control of health has been on beliefs about the locus, or location, of that control (Wallston, 1992). Individuals with high scores on the health locus of control scale are considered "health-externals." They are recognized as having expectancies that the factors which determine their health are such things as luck, fate, chance, or powerful others (Wallston et al., 1978). On the other end of the spectrum people are considered "health-internals," who believe that the locus of control for health is internal and that one stays or becomes healthy or sick as a result of his or her own behavior (Wallston et al., 1978).

Among the more important findings from health locus of control literature is that internal and external control perceptions are differentially related to physical and

psychosocial outcomes in illness (Wallston et al., 1999). In the late 1970s, Wallston, Wallston and DeVellis developed the first health locus of control scale. The domain specific locus of control scale was designed for use in the context of Rotter's social learning theory (Wallston, 1991). Locus of control research has examined in detail the relevance in understanding fluctuations in health behaviors (Rock, Meyerowitz, Maisto, & Wallston, 1987), but Rotter's (1966) locus of control scale was developed to measure only general expectancies and for that reason it could be argued that it should not be used to predict actions in specific situations or domains of activity (Furnham & Steele, 1993). Rotter (1975) recognized that situational specific expectancies were more likely to predict behaviors particular to that situation than were generalized expectancies. Wallston, Maides and Wallston (1976) agreed with Rotter in that it would be reasonable to suspect that an area-specific measure of locus of control would do a better job of predicting behavior in the area it is designed to measure. In response to this agreement Wallston, Wallston and DeVellis created the first health locus of control scale in an attempt to increase the predictability of the locus of control construct in health related situations (Wallston, 1992).

Development of HLC Scale

The original health locus of control scale was developed as a unidimensional measure of people's beliefs that their health is or is not determined by their behavior (Wallston et al., 1978). The first attempt at operationalzing health locus of control was an 11-item summated scale consisting of five internally worded and six externally worded items (Walleston et al., 1976). Rotter's (1966) internal-external locus of control

scale uses forced choice but in contrast Wallston, Wallston and DeVellis chose to use a Likert-scale response format (Wallston et al., 1978).

Development of the MHLC Scale

It was generally agreed upon that Rotter's (1966) internal-external locus of control scale was unidimentional (Furnham & Steele, 1993). Wanting to expand the capabilities of his locus of control scale, Levenson later developed a scale in a multidimensional format (Furnham & Steele, 1993). Levenson demonstrated the effectiveness of measuring the distinctly different dimensions of locus of control (Wallston et al., 1978). Levingston's success with the multidimensional format gave good reason to explore this approach in health behaviors utilizing a health specific locus of control scale (Wallston et al., 1978). Wallston et al. (1978) used the same three-dimensional format in their revised Multidimensional Health Locus of Control Scale (Furnham & Steele, 1993). "By encompassing locus of control within a multidimensional framework, there is more precise measurement of the relative extent to which an individual perceives personal control over his/her outcomes" (Stein & Wallston, 1983, p. 42).

The Multidimensional Health Locus of Control Scale is an 18-item Likert-type questionnaire that includes one internal scale and two external scales (Wallston et al., 1978). Each scale contains six items scored on a 6-point scale, ranging from "strongly agree" to "strongly disagree" (Wallston et al., 1978). The Multidimensional Health Locus of Control Scale contains three sub scales: Internal health locus of control, powerful others locus of control, and chance locus of control. Each independent sub-scale measures an individual's inclination to believe that health outcomes are due to one's own

behavior, to powerful others, or to chance (Wallston & Wallston, 1978). The sub-scales are designed so that all three dimensions are as empirically differentiated and statistically independent of one another as possible (Wallston & Wallston, 1978; Wallston et al., 1978). The use of all three sub-scales is common, but it is the internal dimension that most people have in mind when they think that health locus of control predicts health behavior (Wallston, 1992). The beliefs that fate, luck or chance influences one's health are more appropriately viewed as indicators of a lack of perceived control than as an external locus of control dimension (Wallston, 1992). Research has shown that the beliefs that powerful other persons influence ones health almost never correlates significantly with health behaviors in healthy people (Wallston, 1992).

Wallston et al. (1978) recognized that there are research designs that call for repeated measurements of locus of control beliefs. Having equivalent forms of an instrument could benefit the research by decrease the possibility of individuals remembering their previous responses (Wallston et al., 1978). Having equivalent forms would thus increase the instruments sensitivity to changes in beliefs over time (Wallston et al., 1978). In response to the need for equivalent forms Wallston, Wallston, and DeVellis developed Form A and Form B of the Multidimensional Health Locus of Control Scale. A majority of the work with the Multidimensional Health Locus of Control Scale in healthy populations has been conducted with Form A, while Form B has been favored by those researchers studying populations with chronic illnesses (Chaplin et al., 2001).

Although specific to health, the sub-scale for internal health locus of control is still fairly generalized and should only properly be used to predict global indices of health behavior (Wallston, 1992). Domain specific locus of control scales are not designed, and should not be counted on, to assess generalized expectancies of control (Furnham & Steele, 1993).

MHLC Scale Reliability and Validity

Kuwahara et al. (2004) assessed the reliability and validity of the Multidimensional Health Locus of Control Scale in a rural Japanese community. The results indicated that the Multidimensional Health Locus of Control Scale has sufficient reliability and validity among that population. Chaplin et al. (2001) tested the Cronbach's coefficient alpha reliability for the sub-scale for internal health locus of control on Form A and found that it was reliable at 0.77. Winfield (1982) also assessed the reliability and validity of the Multidimensional Health Locus of Control Scale in 28 post heart surgery subjects. After 7 months the study showed that the measure was valid and the test-retest reliability was adequate (Winfield, 1982). Winfield (1982) found that Cronbach's coefficient alpha reliability for the internal sub-scale of the Multidimensional Health Locus of Control Scale on Form A was reliable at 0.70. Wallston (2005) found that the internal portion of the Multidimensional Heath Locus of Control Scale was valid and correlated significantly at .57 with its counterpart, Levenson's Internal Scale. Wallston (2005) further tested the validity of the internal portion of the Multidimensional Heath Locus of Control Scale by comparing it to a two-item measure of self reported health status. Wallston (2005) found that the two measurers were positively correlated ($r = .40$).

Predictors of Health Locus of Control

A myriad of societal, cultural and religious factors are uncovered when using the Multidimensional Health Locus of Control Scale to learn more about a population pertaining to their health beliefs and health behaviors (Eagan et al., 2009). Demographics, race, social class are all examples of contributing factors that could be used along with Multidimensional Health Locus of Control Scale scores to explain the variance in health beliefs (Wallston, 1978). Previous research has shown that low socioeconomic status, females, non-white ethnicity, old age, and low education are associated with increased external health locus of control (Cohen & Azaiza, 2007).

Age

It has been hypothesized that older adults desire less control than younger adults, but Lachman (1986) found that there were no differences in internal health locus of control beliefs for older adults. Similarly, Smith et al. (1988) conducted a study that administered the Multidimensional Health Locus of Control Scale to 246 adults in a large southeastern city and found that there was no significant effect of age for internal health locus of control. Eagan et al. (2009) found in a study that included 3,599 American Indian men and women that age only showed a weak inverse association with internal health locus of control. Poortinga, Dunstan, and Fone (2007) analyzed the data from a 2001 survey conducted in Caerphilly County, Southeast Wales, and the United Kingdom. The analysis of the 12,408 surveys showed the possibility of a quadratic association between age and internal health locus of control (Poortinga et al., 2007). The study showed that levels of internal health locus of control increase gradually up to the 55-64

age group and then decrease to lower levels for the 65-74 age group (Poortinga et al., 2007). Marshall (1991) conducted an analysis of internal health locus of control beliefs derived from 181 medical outpatients using the Multidimensional Health Locus of Control Scale and found no association between age and internal health locus of control (Marshall, 1991).

Gender

Determinants of health are of considerable interest in health research today (Duetz, Abel, & Niemann, 2003). Gender is one of the numerous factors that are seen as having an influence on levels of health (Duetz et al., 2003). Cohen and Azaiza (2007) surveyed 520 people in the Middle East and found that Arab women reported lower internal health locus of control scores then Arab men and Jewish males showed a significant relationship to internal health locus of control scores. Eagan et al. (2009) found in a study that included 2,166 American Indian women and 1,433 American Indian men that there was no difference between men and women for internal locus of control scores. Paxton and Sculthorpe (1999) examined health locus of control beliefs as they pertain to weight in an Australian community sample. Using the Multidimensional Health Locus of Control Scale their study showed that females perceived health to be more internally controlled than males (Paxton & Sculthorpe, 1999). Buckelew et al. (1990) used the Multidimensional Health Locus of Control Scale to study 160 subjects (67 male and 93 females) on the topic of health locus of control, gender differences and adjustment to persistent pain. The data collected showed that there was no significant difference between the scores of the males and females (Buckelew et al., 1990). The data

also showed that the younger male participants showed more internal health locus of control (Buckelew et al., 1990).

Race/Ethnicity

It has become common for researchers to conduct studies in populations that have different demographic backgrounds (O'Hea, Bodenlos, Moon, Grothe, & Brantley, 2009). It has been recommended that health locus of control research should show more sensitivity, but few studies have examined health locus of control beliefs among different races and ethnicities (O'Hea et al., 2009). Using the internal subscale of the Multidimensional Health Locus of Control Scale, Cohen and Azaiza, (2007) surveyed 358 Jews and 162 Arabs ages 50-75 years, and found that Jewish ethnicity was significantly related to internal health locus of control scores. Arab ethnicity was significantly related to external health locus of control scores. Bremer, Moore, Bourbon, Hess, and Bremer (1997) measured psychological adjustment and health related locus of control in 257 South African women both with and without breast cancer. The study results revealed that black women were the lowest on the perception of internal locus of control (Bremer et al., 1997).

Spirituality

One external source of health control that has not received adequate attention is that of religion (Wallston et al., 1999). The roll of religion is an important cross-cultural variable in health locus of control research (Stein, Smith, & Wallston, 1984). The impact that religion has on people's lives ranges from areas where one predominant religion impacts all phases of its populaces' lives, to areas where religion is de-emphasized to the

point of atheism (Stein et al., 1984). This suggests that it is likely that religion may be a source of control-related cognitions. (Wallston et al., 1999). Using an expanded four-subscale version of the Multidimensional Health Locus of Control Scale Caplin et al. (2001) and Wallston et al. (1999) found that stronger beliefs in God were a source of health-related control and was associated with less adaptation in individuals with chronic illness. Gonnerman, Lutz, Yehieli, and Meisinger (2008) conducted face to face interviews on a non-random sample of 105 adult African American Christians in a rural Midwest area. The interview measured demographics, health promotion, health locus of control beliefs, emotional health, physical health, and religious practices. The interviews revealed that there was a weak correlation between the belief in God and internal control of one's health (Gonnerman et al., 2008). Saudia, Kinney, Brown, and Young-Ward (1991) examined the relationship of health locus of control and helpfulness of prayer as coping mechanism in patients before invasive surgery. The Multidimensional Health Locus of Control Scale was used along with an investigator-developed survey concerning helpfulness of prayer. Analysis of the data collected from the 100 subjects who participated concluded that there was no relationship between health locus of control beliefs and helpfulness of prayer beliefs (Saudia et al., 1991). Ai, Peterson, Rodgers, and Tice (2005) used the Multidimensional Health Locus of Control Scale to explore the relationship between faith factors and internal health locus of control beliefs. The sample consisting of 202 middle-aged surgical patients showed that greater internal control was positively associated with private prayer, but negatively related to subjective religiosity (Ai et al., 2005).

Socioeconomic Status

Most previous studies agreed that people with low socioeconomic status (low income, fewer years of education) tend to have higher "external" scores and people with high socioeconomic status tend to have higher "internal" scores (Kuwahara et al., 2004). Smith et al. (1988) found that level of education was significant for internal health locus of control scores. It indicated that people with more education expected and desired more control (Smith et al., 1988). Eagan et al. (2009) studied a sample of an American Indian population that included 3,599 men and women. The study concluded that years of education were not associated with internal health locus of control (Eagan et al., 2009). Bremer et al. (1997) measured psychological adjustment and health related locus of control in 257 South African women both with and without breast cancer. This study was conducted in an area where the white population is generally more advantaged in the socioeconomic hierarchy (Bremer et al., 1997). The patterns in the research indicate that societal structure has an impact on the beliefs about ability to control one's health (Bremer et al., 1997). Poortinga et al. (2007) analyzed the data from a 2001 survey conducted in Caerphilly county, southeast Wales, United Kingdom. The analysis of the 12,408 surveys showed that there were clear socio-economic differences in health locus of control beliefs (Poortinga et al., 2007). The data indicated that people with lower socio-economic status score more internal on the Multidimensional Health Locus of Control Scale (Poortinga et al., 2007).

Geographic Construct

Few studies have directly compared cultural or geographic variation in Multidimensional Health Locus of Control Scale scores (Eagan et al., 2009). McConnell, Larson, Santamore & Homko (2008) surveyed 254 people in rural and urban Pennsylvania using the Multidimensional Health Locus of Control Scale in order to determine the impact of telemedicine on exercise levels. They found that Multidimensional Health Locus of Control Scale scores were independent of residence. There was no significant difference between the scores in the urban and rural areas tested. Rozmus, Evans, Wysochansky, and Mixon (2005) conducted a study in a rural southern setting that described health promotion and risk behaviors of entering college students. Form A of the Multidimensional Health Locus of Control Scale was used to gauge the participant's beliefs on control of health. The Multidimensional Health Locus of Control scores indicated that the students believed that they were in control of their health and that personal behavior is responsible for their health (Rozmus et al., 2005). When Rozmus et al. (2005) compared the findings to the National College Risk Behavior data, it showed that the participants in this rural area were significantly lower in many health risk behaviors than the national average.

CHAPTER 3

METHODOLOGY

Introduction

This study utilized a quantitative survey methodology, which explored the characteristics of locus of control and health locus of control between a rural Tennessee population and an urban Tennessee population using scores from Rotter's Internal-External Locus of Control Scale and the Multidimensional Health Locus of Control Scale. Demographic information on the survey (age, gender, race, annual household income, size of household, level of education, spirituality) and the scores from Rotter's Internal-External Locus of Control Scale and the Multidimensional Health Locus of Control Scale were investigated to find the predictors of locus of control and health locus of control for the samples. This study was designed to answer the following research questions:

- Is there a relationship between locus of control and health locus of control and does the relationship differ between rural populations and urban populations?
- Is there a significant difference in health locus of control between rural populations and urban populations?
- What are the predictors of health locus of control for the population as a whole (internal versus external)?
- What are the predictors of health locus of control for a rural population (internal versus external)?

- What are the predictors of health locus of control for an urban population (internal versus external)?
- Do locus of control and health locus of control have common predictors for the rural population?
- Do locus of control and health locus of control have common predictors for the urban population?

Participants

This study used an extant data set collected by the researcher when examining rural versus urban locus of control. A total of 156 participants (79 rural and 77 urban) completed the locus of control and health locus of control surveys. Participants were classified as urban or rural using purely quantitative definitions set forth by the United States Census Bureau. Under these definitions an urban area is defined as any area with a population density of 1,000 people per square mile of land area that together has a minimum residential population of at least 50,000 people, whereas, a rural area is defined as any area that is not classified as urban.

The inclusionary criteria for the participants were limited to age and location of residence. All participants had to be 18 years of age or older and must be a resident of the respective location being tested.

Instrumentation

The instrument that was used to collect data was a four page survey consisting of a cover page that was designed to collect the participant's demographic information that is relevant to this study, Julian B. Rotter's (1966) two-page Internal-External Locus of

Control Scale, and Wallston, Wallston and DeVellis' (1978) one-page Multidimensional Health Locus of Control Scale.

The survey cover page was used to gather demographical and personal information. All participants were asked to give the zip code of their primary household to ensure their residence in either the urban or rural locations being tested. Next participants indicated their age by checking one of the following age category boxes: 18 to 30 years of age, 31 to 50 years of age, or 51 years of age or older and gender by checking one of two boxes labeled M for male or F for Female. The participants were presented with five boxes labeled: White, Black, Hispanic, Asian, and Other to indicate ethnicity.

Socio-economic status (SES) was assessed with three separate questions. For the first question, participants provide their yearly household income by checking one of three boxes labeled: $0 to $20,000, $20,001 to $50,000, and $50,001 and up. The second question gave participants the opportunity to provide the size of their family unit by checking one of seven boxes labeled; 1, 2, 3, 4, 5, 6, and more than 6. The third question asked the participant to provide their highest level of education completed by checking one of six boxes labeled: Less than grade, some high school with no diploma, high school diploma, some college with no diploma, associates or bachelors degree, graduate or professional degree.

Information about the participants' spirituality was obtained by making the statement, "I consider God and/or spirituality to be a very important part of my life" and giving the participant the opportunity to respond to the statement by checking one of 6

boxes. The response options were; 1 = Strongly disagree, 2 = Moderately disagree, 3 = Slightly disagree, 4 = Slightly agree, 5 = Moderately agree, 6 = Strongly agree.

Internal-External Locus of Control Scale. The Internal-External Locus of Control Scale is a 23 item forced choice personality test that was originally presented in 1966 in Psychology Monograph (Rotter, 1966) (see Appendix A). The 1966 version of the test was the fifth revision of a test that first appeared in the dissertations presented by two of Rotter's graduate students at The University of Connecticut and later used in a project supported by the Air Force Office of Scientific Research (Rotter, 1966).

Rotter's test is designed to measure generalized expectancies for internal and external control of reinforcement by presenting participants with two statements and asking participants to select from each paired set the one statement that most closely represents their own personal belief. The 29-item survey consists of 23 items that receive either 1 point or zero points for the answer and 6 filler items that receive no score. The 23 items are then summed; a higher total score indicates a locus of control that is more external and a lower total score indicates a locus of control that is more internal.
The reliability of Rotter's Internal-External Locus of Control Scale has been confirmed by several different studies. Zegra et al. (1976) administered Rotter's Internal-External Locus of Control Scale to 541 high school students on two different occasions in order to determine the test's reliability. Test-retest reliability was confirmed in this study with a Pearson's product-moment correlation coefficient of $r = 0.55$ (Zegra et al., 1976). In a subsequent study, Lange and Tiggemann (1981) also used a test-retest format in order to determine the reliability of Rotter's Internal-External Locus of Control Scale. Test-retest

reliability of the scale was 0.61 suggesting that it is reliable and stable over time (Lange & Tiggemann, 1981).

Multidimensional Health Locus of Control Scale. Wallston, Wallston and DeVellis' (1978) Multidimensional Health Locus of Control Scale is an 18-item questionnaire that includes one internal sub-scale and two external sub-scales (see Appendix B). The items are rated with a 6-point Likert-type scale, ranging from "strongly agree" to "strongly disagree."

The Multidimensional Health Locus of Control Scale is considered a domain specific locus of control scale that is designed for use in the context of Rotter's social learning theory and to measure generalized health expectancies for internal and external control of reinforcement (Wallston, 1991). The entire 18-item questionnaire was presented to the participants, although only data from the 6-item internal sub-scale will be used for this study. The 6-item internal sub-scale is the portion of the Multidimensional Health Locus of Control Scale that measures internal-external locus of control (Wallston, 1992). The chance and powerful others sub-scales were not included in the scoring process because they are a more accurate indicators of a lack of perceived control than as an external locus of control dimension (Wallston, 1992). To obtain Health Locus of Control score, the 6 items on the internal sub-scale are summed. A higher total score indicates a health locus of control that is more internal and a lower total score indicates one that is more external.

Procedures

The University of Memphis Institutional Review Board approved the recruitment materials, survey procedures, surveys, and informed consent prior to conducting the study in order to ensure the protection of the participant's rights.

Two similar private business establishments were chosen for the distribution of the locus of control and health locus of control surveys in the rural and urban areas. The surveys were distributed in the reception area of a physician's office in rural Millington, Tennessee and the reception area of a physician's office in urban Memphis, Tennessee. Verbal consent was obtained from the management prior to distribution at both locations to conduct a survey on the private property. Patrons of the private establishment were randomly approached and asked if they would be willing to complete a 15-minute survey. If the patron agreed to participate, they were asked to read the consent form (see Appendix C) that explains the purpose of the study, confidentiality, and that completion and submission of the survey constitutes informed consent. In the reception areas of the physician's offices, a chair, a pen and a clipboard containing the survey was provided for the participants. The participants were asked to carefully read and follow the instructions on the survey. After completing the survey, participants were asked to seal their survey in an envelope and return it to the researcher.

Data Analysis

All data were analyzed using the Statistical Package for the Social Sciences Version 15.01 (SPSS). Preliminary analyses included examining frequencies, distributions, histograms and box-plots for locus of control and health locus of control

and the various explanatory variables (see Table 1). Descriptive data included calculating means and standard deviations as well as calculating correlations. An analysis using bivariate correlations to test the relationship between locus of control and health locus of control was conducted. Further analysis involved using independent sample hypothesis testing to determine whether there was a difference between rural and urban populations on the correlation coefficients for locus of control and health locus of control.

A *t*-test was conducted to compare rural participants to urban participants on health locus of control to see if there were significant differences between the rural and urban samples on health locus of control. Further, dependent on the *t*-test results multiple linear regression was used to determine the primary influences on health locus of control. Two multiple linear regressions were conducted separating out the rural sample and the urban sample. The assumptions underlying the application of multiple linear regression analysis were examined. The model investigated eight independent variables: rural versus urban, age, gender, race, yearly household income, size of household, highest level of education, and spirituality with the dependent variable being health locus of control. In order to interpret income and race in the regression, they were recoded as dichotomous variables. Income was recoded where 1 = "$\leq$ $50,000" and 2 = "> $50,000". Race was recoded where 1 = "non-minority" and 2 = "minority".

A further investigation including two multiple linear regressions was conducted separating out the rural sample and the urban sample. The multiple linear regression was used to determine if the rural and urban areas share common predictors of health locus of control. The multiple linear regression used the eight independent variables: rural versus

urban, age, gender, race, yearly household income, size of household, highest level of education, and spirituality with the dependent variable being health locus of control. In order to interpret income and race in the regression, they were recoded as dichotomous variables. Income was recoded where 1 = "≤ $50,000" and 2 = "> $50,000". Race was recoded where 1 = "non-minority" and 2 = "minority".

Table 1

Data Analysis by Research Questions and Data Sources

Research Question	Data Sources	Analysis
Research Question 1. Is there a relationship between locus of control and health locus of control and does the relationship differ between rural populations and urban populations?	1) *Rotter's Internal-External Locus of Control Scale (23 items).* 2) *Multi Dimensional Health Locus of Control Scale (6 Internal items).*	First, data will be analyzed using bivariate correlations to test the relationship between locus of control and health locus of control. Second, data will be analyzed using independent sample hypothesis testing as to whether there is a difference between rural and urban populations on the correlation coefficients for locus of control and health locus of control.
Research Question 2. Is there a significant difference in health locus of control between rural populations and urban populations?	1) *Multi Dimensional Health Locus of Control Scale (6 Internal items).*	Data will be analyzed using a t-test to compare rural participants to urban participants on health locus of control. The total score for the health locus of control scale will be entered as the dependent variable.
Research Question 3. What are the predictors of health locus of control for the whole population (internal versus external)?	*1)Multi Dimensional Health Locus of Control Scale (6 Internal items).* *2)Age of the urban participants.* *3)Gender of urban participants.* *4)Ethnicity of urban participants.* *5)Spirituality of urban participants.* *6)Socioeconomic Status of urban participants.*	Data will be analyzed with multiple linear regression to determine the significant influences on health locus of control for a rural population. The dependent variable being health locus of control and the independent variables being age, gender, ethnicity, spirituality, SES.

Table Continues

Table 1

Data Analysis by Research Questions and Data Sources

Research Question	Data Sources	Analysis
Research Question 4. What are the predictors of health locus of control for a rural population (internal versus external)?	*1) Multi Dimensional Health Locus of Control Scale (6 Internal items).* *2) Age of the rural participants.* *3) Gender of rural participants.* *4) Ethnicity of rural participants.* *5) Spirituality of rural participants.* *6) Socioeconomic Status of rural participants.*	Data will be analyzed with multiple linear regression to determine the significant influences on health locus of control for a rural population. The dependent variable being health locus of control and the independent variables being age, gender, ethnicity, spirituality, SES.
Research Question 5. What are the predictors of health locus of control for an urban population (internal versus external)?	*1) Multi Dimensional Health Locus of Control Scale (6 Internal items).* *2) Age of the urban participants.* *3) Gender of urban participants.* *4) Ethnicity of urban participants.* *5) Spirituality of urban participants.* *6) Socioeconomic Status of urban participants.*	Data will be analyzed with multiple linear regression to determine the significant influences on health locus of control for an urban population. The dependent variable being health locus of control and the independent variables being age, gender, ethnicity, spirituality, SES.
Research Question 6. Do locus of control and health locus of control have common predictors for the rural population?	1) *Rotter's Internal-External locus of control scale (23 items).* 2) *Multi Dimensional Health Locus of Control Scale (6 Internal items).* 3) *Age of the rural participants.* 4) *Gender of rural participants.* 5) *Ethnicity of rural participants.* 6) *Spirituality of rural participants.* 7) *Socioeconomic Status of rural participants.*	Data will be analyzed with multiple linear regressions to determine the significant influences on locus of control and health locus of control for a rural population. The dependent variable being locus of control and health locus of control and the independent variables being age, gender, ethnicity, spirituality, SES.
Research Question 7. Do locus of control and health locus of control have common predictors for the urban population?	1) *Rotter's Internal-External locus of control scale (23 items).* 2) *Multi Dimensional Health Locus of Control Scale (6 Internal items).* 3) *Age of the urban participants.* 4) *Gender of urban participants.* 5) *Ethnicity of urban participants.* 6) *Spirituality of urban participants.* 7) *Socioeconomic Status of urban participants.*	Data will be analyzed with multiple linear regressions to determine the significant influences on locus of control and health locus of control for an urban population. The dependent variables being locus of control and health locus of control and the independent variables being age, gender, ethnicity, spirituality, SES.

CHAPTER 4

RESULTS

This chapter begins by providing detailed demographic information about the participants who completed the survey (see Table 2). This is followed with a presentation of results as they relate to each research question. The chapter concludes with a synopsis of findings.

Participant Demographics

A total of 156 people completed the voluntary survey. Table 2 provides a comprehensive summary of the demographic variables reported by the participants.

Residence

Regarding area of residence, there was a fairly equal distribution between those who reported rural residence (50.6%, *n* = 79) and those who reported urban residence (49.4%, *n* = 77).

Age, Gender, and Ethnicity

For age, 40.4% (*n* = 63) were above the age of 50 and 37.8% (*n* = 59) were between the ages of 31 and 50. The remaining participants (21.8%, *n* = 34) were between the ages of 18 and 30. There were slightly more females that completed the survey (53.2%, *n* = 83). With regard to ethnicity, the majority of the participants where white (91%, *n* = 142), followed by Black (5.8%, *n*= 9).

Household Income and Size

When examining household income, slightly over one-half (54.5%, *n* = 85) of participants classified their annual household income as $50,001 or greater. This was

followed by nearly 40% (37.2%, *n* = 58) whose household income was reported as being between $20,001 and $50,000. Less than 10% (8.3%, *n* = 13) of the people reported $20,000 or less annual household income. When reporting the number of people or size of the household, the largest percentage of participants (37.8%, *n* = 59) reported two people; whereas, less than 2.0% (1.9%, *n* = 3) reported six people in the household.

Education

When reporting level of education 28.8% (*n* = 45) indicated that they had some college education and another 28.8% (*n* = 45) claimed to have completed an associate's degree or a bachelor's degree. The remainder of the participants reported a high school diploma or GED 21.2% (*n* = 21.2), followed by a graduate or professional degree 18.6% (*n* = 29) and some high school completed 2.6% (*n* = 4).

Spirituality

When asked to rate their level of agreement to the following question designed to predict level of spirituality, "I consider God and/or spirituality to be a very important part of my life," 61.5% (*n* = 96) strongly agreed. The minority consisted mostly of people who strongly disagreed 13.5% (*n* = 21), followed by people who moderately agreed 11.5% (*n* = 18), and people who slightly agreed 9% (*n* = 14).

Table 2
Participant Demographics

N = 156

Variable	Categories	Groups % (*n*)		
		Rural	Urban	Combined
Location	NA	50.6 (79)	49.4 (77)	156 (100)
Age	18 - 30	15.2 (12)	27.3 (21)	21.8 (34)
	31 - 50	48.1 (38)	29.9 (23)	37.8 (59)
	51 and Above	36.7 (29)	42.9 (33)	40.4 (63)
Gender	Male	39.2 (31)	57.1 (44)	46.8 (73)
	Female	60.8 (48)	42.9 (33)	53.2 (83)
Race	White	88.6 (70)	92.2 (71)	91.0 (142)
	Black	7.6 (6)	5.4 (4)	5.8 (9)
	Hispanic	0 (0)	1.3 (1)	.6 (1)
	Asian	1.3 (1)	0 (0)	.6 (1)
	Other	2.5 (2)	1.3 (1)	1.9 (3)
Annual Household Income	$0 - $20,000	10.1 (8)	7.8 (6)	8.3 (13)
	$20,001 - $50,000	31.6 (25)	41.6 (32)	37.2 (58)
	$50,000 and Above	58.2 (46)	50.6 (39)	54.5 (85)
Number of People in the Household	One	10.1 (8)	20.8 (16)	16.7 (26)
	Two	36.7 (29)	41.6 (32)	37.8 (59)
	Three	27.8 (22)	15.6 (12)	21.8 (34)
	Four	15.2 (12)	15.6 (12)	15.4 (24)
	Five	10.1 (8)	2.6 (2)	6.4 (10)
	Six	0 (0)	3.9 (3)	1.9 (3)
Level of Education	Some High School	1.3 (1)	6.5 (5)	2.6 (4)
	High School Diploma or GED	30.4 (24)	11.7 (9)	21.2 (33)
	Some College	26.6 (21)	31.2 (24)	28.8 (45)
	Associates or Bachelors Degree	26.6 (21)	28.6 (22)	28.8 (45)
	Graduate or Professional Degree	15.2 (12)	22.1 (17)	18.6 (29)
Spirituality	Strongly Agree	75.9 (60)	46.8 (36)	61.5 (96)
	Moderately Agree	10.1 (8)	11.7 (9)	11.5 (18)
	Slightly Agree	0 (0)	16.9 (13)	9.0 (14)
	Slightly Disagree	1.3 (1)	5.2 (4)	3.2 (5)
	Moderately Disagree	2.5 (2)	1.3 (1)	1.3 (2)
	Strongly Disagree	10.1 (8)	18.2 (14)	13.5 (21)

Inferential Analyses

The results of the inferential analyses are described and tables are presented below by each of the research questions.

Research Question 1: Is there a relationship between locus of control and health locus of control and does the relationship differ between rural populations and urban populations?

A bivariate correlation was conducted to test the relationship between locus of control and health locus of control. There was a statistically significant negative relationship between locus of control scores and health locus of control scores, $r = -0.258$, $p < 0.01$. This indicates that as the locus of control score increases the health locus of control score decreases; however, these two constructs are scored in opposite directions. Therefore, there is a positive relationship between locus of control and health locus of control in that as the Multidimensional Health Locus of Control Scale score become higher it indicates more internal beliefs concerning health locus of control. As Rotter's Internal-External Locus of Control Scale score becomes lower it indicates more internal beliefs concerning general locus of control. Therefore, due to the difference in scoring methods of the two separate instruments, the findings of the bivariate correlation indicate that if the participant has a tendency towards using an internal locus of control for health decisions, they would also use an internal locus of control for general decisions. Similarly, if the participant has a tendency towards using a more external locus of control for health decisions, they would also use external locus of control for general decisions.

An independent sample hypothesis testing was conducted to determine if there was a difference between rural (r = -.294) and urban (r = -.232) populations on the correlation coefficients for locus of control and health locus of control. This test showed that there was not a significant difference between rural and urban on the relationship between health locus of control and locus of control, z = -0.41, p = .682.

Research Question 2: Is there a measurable difference in health locus of control between rural populations and urban populations?

A *t*-test was conducted to determine the difference in health locus of control scores between rural populations and urban populations as represented by the participant sample. Results indicate that there was homogeneity of variances between the groups (0.80; $p > .05$). Using a two-tailed .05 criterion, the rural group (M = 26.79, SD = 3.93) did not score significantly differently than the urban group on health locus of control [(M = 28.09, SD = 5.17), $t(154) = 1.76$, p = .259].

Research Questions 3: What are the predictors of health locus of control for the population as a whole (internal versus external)?

A multiple linear regression was performed using all of the participants in the data set in order to determine if the set of independent variables was significant in explaining health locus of control scores. For the entire population, the set of independent variables was significant (F = 3.957, p = .000) and explained 17.7% of the health locus of control scores. For the entire population, gender (B =1.946; p = .010) and spirituality (B = .601; p = .006) were the only independent variables that were significant (see Table 3). The multiple linear regression showed that females scored higher for health locus of control

and as spirituality increased health locus of control scores increased, indicating that the more spiritual a person is the more internal their health locus of control beliefs become.

Table 3

Results of Regression of Rural and Urban Health Locus of Control and Other Variables (N = 156)

Independent Variables	*b*	*B*	*t*
1. Age	.064	.391	.690
2. Gender	.211	1.946	2.626**
3. Race	-.142	-2.224	-1.869
4. Household Income	.128	1.186	1.420
5. Size of Household	-.090	-.345	-1.086
6. Level of Education	-.129	-.530	-1.594
7. Spirituality	.235	.601	2.779**
R-square =.177			

*$p < .05$. **$p < .01$. ***$p < .001$.

The relationships among health locus of control scores in the rural and urban areas and the independent variables were examined and the findings are presented in Table 4. Health locus of control scores were positively related to gender ($r = .158$, $p = .024$) and spirituality ($r = .223$, .003), household income ($r = .022$, $p = .392$), and age ($r = .171$, $p = .016$). An inverse relationship was shown to exist between health locus of control scores and race ($r = -.149$, $p = .032$).

Table 4

Correlation Matrix for Health Locus of Control in Rural and Urban Area (N = 156)

	1	2	3	4	5	6	7	8
1. HLOC Score	1.000							
2. Age	.171*	1.000						
3. Gender	.158*	-.136	1.000					
4. Race	-.149*	.051	-.053	1.000				
5. Household Income	.022*	.326	-.287	.095	1.000			
6. Size of Household	-.133	-.242	-.042	.119	.165	1.000		
7. Level of Education	-.066	-.048	-.047	.046	.235	-.094	1.000	
8. Spirituality	.223**	.355	.089	.040	.051	-.017	.069	1.000

*$p < .05$. **$p < .01$. ***$p < .001$.

Research Questions 4: What are the predictors of health locus of control for a rural population (internal versus external)?

For the rural population the set of independent variables was significant (F = 3.209, p = .005) and explained 24.0% of the health locus of control scores. For the rural participants, race (B = -3.964; p = .004), income (B = 2.327; p = .014), and level of education (B = -.852; p = .032) were the independent variables that were significant (see Table 5). As the rural population's income increased heath locus of control scores also increased indicating more internal beliefs on health locus of control. As the rural population's level of education increased health locus of control scores decreased indicating more external beliefs on health locus of control.

Table 5

Results of Regression of Rural Health Locus of Control and Other Variables (N = 79)

Independent Variables	*b*	*B*	*t*
1. Age	-.004	-.023	-.032
2. Gender	-.011	-.087	-.104
3. Race	-.322	-3.964	-3.001**
4. Household Income	.294	2.327	2.510*
5. Size of Household	-.064	-.221	-.542
6. Level of Education	-.236	-.852	-2.184*
7. Spirituality	.208	.505	1.933
R-square =.240			

*$p < .05$. **$p < .01$. ***$p < .001$.

The relationships among health locus of control scores in the rural area and the independent variables were examined and the findings are presented in Table 6. Health locus of control scores were positively related to household income ($r = .225$, $p = .023$). An inverse relationship was shown to exist between health locus of control scores and race ($r = -.294$, $p = .004$), level of education ($r = -.189$, $p = .048$).

Table 6

Correlation Matrix for Health Locus of Control in Rural Area (N = 79)

	1	2	3	4	5	6	7	8
1. HLOC Score	1.000							
2. Age	.186	1.000						
3. Gender	-.035	-.163	1.000					
4. Race	-.294**	-.062	-.043	1.000				
5. Household Income	.225*	.377	-.050	.100	1.000			
6. Size of Household	-.159	-.379	.030	.213	.066	1.000		
7. Level of Education	-.189*	-.104	.035	.043	.093	.125	1.000	
8. Spirituality	.121	.042	-.067	.106	-.042	-.081	.198	1.000

*$p < .05$. **$p < .01$. ***$p < .001$.

Research Question 5: What are the predictors of health locus of control for an urban population (internal versus external)?

For the urban population, the set of independent variables was significant (F = 2.974, p = .009) and explained 23.2% of the health locus of control scores. Gender was the only independent variable that was significant (B = 3.630; p = .013) (see Table 7). For the urban population females scored higher on health locus of control indicating more internal health locus of control beliefs.

Table 7

Results of Regression of Urban Health Locus of Control and Other Variables (N = 77)

Independent Variables	*b*	*B*	*t*
1. Age	.024	.152	.156
2. Gender	.349	3.630	2.564*
3. Race	.012	.235	.106
4. Household Income	.064	.657	.395
5. Size of Household	-.049	-.200	-.388
6. Level of Education	-.016	-.074	-.125
7. Spirituality	.289	.789	1.952
R-square =.232			

*$p < .05$. **$p < .01$. ***$p < .001$.

The relationships among health locus of control scores in the urban area and the independent variables were examined and are presented in Table 8. Health locus of control scores were positively related to spirituality ($r = .361$, $p = .001$), and age ($r = .175$, $p = .064$). There were no inverse relationships shown to exist between health locus of control scores in the urban area and the independent variables.

Table 8

Correlation Matrix for Health Locus of Control in Urban Area (N = 77)

	1	2	3	4	5	6	7	8
1. HLOC Score	1.000							
2. Age	.175**	1.000						
3. Gender	.362	-.132	1.000					
4. Race	-.042	.173	-.042	1.000				
5. Household Income	-.114	.282	-.562	.101	1.000			
6. Size of Household	-.091	-.149	-.151	.037	.241	1.000		
7. Level of Education	-.005	.003	-.088	.037	.391	-.262	1.000	
8. Spirituality	.361**	.586	.151	-.165	.101	-.018	.013	1.000

*$p < .05$. **$p < .01$. ***$p < .001$.

Research Question 6: Do locus of control and health locus of control have common predictors for the rural population?

For the rural population the set of independent variables was significant (F = 2.932, p = .009) and explained 22.4% of the locus of control scores. Gender was the only independent variable that was significant (B = 1.916; p = .017) with females having a higher locus of control score than males (see Table 9). A higher locus of control score indicates a more external locus of control for the females in the rural area.

Table 9

Results of Regression of Rural Locus of Control and Other Variables (N = 79)

Independent Variables	*b*	*B*	*t*
1. Age	-.225	-1.150	-1.702
2. Gender	.264	1.916	2.436*
3. Race	-.103	-1.206	-.995
4. Household Income	.001	.007	.008
5. Size of Household	.101	.311	.855
6. Level of Education	.162	.541	1.491
7. Spirituality	.049	.110	.456
R-square =.224			

*$p < .05$. **$p < .01$. ***$p < .001$.

The relationship between Locus of Control scores in the rural area and the independent variables was examined and is presented in Table 10. Gender revealed the most positive relationship with locus of control scores ($r = .320$, $p = .002$) followed by level of education ($r = .222$, $p = .024$). An inverse relationship was shown to exist between locus of control scores and age ($r = -.333$, $p = .001$).

Table 10

Correlation Matrix for LOC in Rural Area (N = 79)

	1	2	3	4	5	6	7	8
1. LOC Score	1.000							
2. Age	-.333**	1.000						
3. Gender	.320**	-.210	1.000					
4. Race	-.080	-.139	-.090	1.000				
5. Household Income	-.100	.377	-.081	.056	1.000			
6. Size of Household	.184	-.387	.026	.189	.056	1.000		
7. Level of Education	.222*	-.170	.009	-.031	.053	.084	1.000	
8. Spirituality	.035	-.011	-.104	.036	-.072	-.111	.158	1.000

*$p < .05$. **$p < .01$. ***$p < .001$.

Research Question 7: Do locus of control and health locus of control have common predictors for the urban population?

For the urban population, the set of independent variables was significant (F = 2.48, p = .025) and explained 20.1% of locus of control scores. In this regression two independent variables were significant. Gender (B = -2.296; p = .044) was significant and showed that males had a higher locus of control score than females (see Table 11). A higher locus of control score indicates a more external locus of control for the males in the urban area. Income (B = -3.783; p = .005) was also significant and showed that as income increased locus of control scores decreased. Lower locus of control scores indicates a more internal locus of control for the urban participants that reported higher levels of income.

Table 11

Results of Regression of Urban Locus of Control and Other Variables (N = 77)

Independent Variables	*b*	*B*	*t*
1. Age	-.041	-.195	-.259
2. Gender	-.287	-2.296	-2.056**
3. Race	-.190	-2.814	-1.617
4. Household Income	-.477	-3.783	-2.894*
5. Size of Household	.140	.434	1.076
6. Level of Education	.146	.520	1.086
7. Spirituality	-.097	-.208	-.641
R-square =.201			

*$p < .05$. **$p < .01$. ***$p < .001$.

The relationship between locus of control scores in the urban area and the independent variables was examined and presented in Table 12. There was a significant inverse relationships were shown to exist between locus of control scores and household income (r = -.258, p = .012), age (r = -.246, p = .016), and race (r = -.208, p = .035).

Table 12

Correlation Matrix for Locus of Control in Urban Area (N = 77)

	1	2	3	4	5	6	7	8
1. LOC Score	1.000							
2. Age	-.246*	1.000						
3. Gender	-.048	-.134	1.000					
4. Race	-.208*	.170	-.034	1.000				
5. Household Income	-.258*	.276	-.587	.101	1.000			
6. Size of Household	.029	-.119	-.171	.034	.250	1.000		
7. Level of Education	-.042	-.031	-.110	.049	.368	-.286	1.000	
8. Spirituality	-.176	.600	.129	-.163	.081	-.024	-.042	1.000

*$p < .05$. **$p < .01$.***$p < .001$.

Synopsis of Findings

A summary of key findings associated with the Multidimensional Health Locus of Control Scale and Rotter's Internal-External Locus of Control Questionnaire are presented below:

- There was a significant relationship between locus of control scores and health locus of control scores indicating that if the participant has a tendency towards using and internal locus of control for health decisions, they would also use an internal locus of control for general decisions. Similarly, if the participant has a tendency towards using a more external locus of control for health decisions, they would also use a more external locus of control for general decisions.

- There was not a significant difference between rural and urban on the relationship between health locus of control and locus of control.
- There were no significant differences between health locus of control scores for the rural population and urban population.
- For the entire population, gender and spirituality had a significant positive relationship with health locus of control.
- Race had a significant negative relationship with health locus of control in participants from rural areas.
- Gender had a significant positive relationship with health locus of control in participants from urban areas.
- The rural population did not have any common predictors for locus of control and health locus of control.
- The urban population did have gender as a common predictor for locus of control and health locus of control.

CHAPTER 5

DISCUSSION

This chapter discusses the findings as they relate to the research questions, which guided the focus of the study. Also discussed are the implications for further research, methodological issues, and the final conclusions of the study.

Findings Related to the Research Questions

Julian Rotter is credited with the development, in the mid-1950s, of what would become modern social learning theory (Hogben & Dyrne, 1998). There are two types of locus of control that stemmed from Rotter's (1966) social learning theory, internal and external perception of control (Rotter, 1975). By the early 1970s Rotter began the development of the Internal-External Locus of Control Scale that could infer a person's locus of control. Later in that same decade Wallston, et al. (1978) developed the Multidimensional Health Locus of Control Scale, an adaptation of Rotter's Internal-External Locus of Control Scale that was designed to solicit responses that could infer a person's health locus of control. The current study used Rotter's (1966) scale and Wallston, Wallston and DeVellis' (1978) scale to examine the differences in questionnaire scores and predictors of questionnaire scores between a rural and urban population. Findings associated with each research question are presented below.

Research Question 1: Is there a relationship between locus of control and health locus of control and does the relationship differ between rural populations and urban populations?

The key findings revealed that there was a statistically significant negative relationship between locus of control scores and health locus of control scores. However, it is important to note that the two instruments used in this study are scored differently. Rotter's Internal-External Locus of Control Scale indicates a more internal locus of control as the score decreases. The Multidimensional Health Locus of Control Scale indicates a more internal locus of control as the score increases. Due to the differences in how the two instruments are scored, this finding indicates that if the participant has a tendency towards using an internal locus of control for health decisions, they would also use an internal locus of control for general decisions. Similarly, if the participant has a tendency towards using a more external locus of control for health decisions, they would also use external locus of control for general decisions. This is consistent with Strickland (1978) who found that research using Rotter's Internal-External Locus of Control Scale showed that beliefs about internal verses external control are related in significant ways to health related behaviors.

The independent sample hypothesis test showed that there was not a significant difference between rural and urban populations on the relationship between health locus of control and locus of control. Although not supported with specific research, this data tends to indicate that locus of control is consistent across the two populations – as seen in Strickland's findings.

Research Question 2: Is there a measurable difference in health locus of control between rural populations and urban populations?

This study was expected to find a measureable difference in health locus of control between the rural and urban populations. The findings of the current study failed to meet this expectation and showed no measurable difference between the two populations. The findings of the current study were consistent with McConnell et al., (2008) who surveyed 254 people in rural and urban Pennsylvania using the Multidimensional Health Locus of Control Scale. The findings of the study showed that scores were independent of residence and there was no significant difference between the rural and urban populations tested (McConnell et al., 2008). The findings of the current study were not consistent with other studies that measured general locus of control between rural and urban areas and health related behaviors between rural and urban areas. For example, Witt (1989) conducted a study that included 136 undergraduates completing Rotter's Internal-External Locus of Control Scale and the data indicated that the subjects that were from non-urban areas had a more internal locus of control orientation. A study by Duelberg (1992) using the 1985 National Health Interview Survey examined possible difference between rural and urban residents concerning their health behavior. Duelberg's (1992) study did show geographical differences concerning primary preventative health behavior where the rural areas tested showed slightly higher levels of primary prevention behaviors (Duelberg, 1992). One possible explanation for this difference could be the way that urban minorities view physicians. It is well documented that race plays a roll in the perception of physicians where minorities have a less positive

perception than Whites (Doescher, Saver, Franks, & Fiscella, 2000). The health care is more accessible to the people in the urban areas but if the people do not trust the doctors than they are less likely to use the services (Doescher, Saver, Franks, Fiscella, 2000).

Research Questions 3: What are the predictors of health locus of control for the population as a whole (internal versus external)?

Research Questions 4: What are the predictors of health locus of control for a rural population (internal versus external)?

Research Question 5: What are the predictors of health locus of control for an urban population (internal versus external)?

Also of interest in this study, was the influence of age, gender, race/ethnicity, household income, size of household, level of education, and spirituality on a person's health locus of control. These seven independent variables were chosen as possible predictors of health locus of control outcomes as based on questionnaire scores. For the entire population, the set of independent variables was significant and explained 17.7% of the health locus of control scores. For the rural population the set of independent variables was significant and explained 24.0% of the health locus of control scores. For the urban population, the set of independent variables was significant and explained 23.2% of the health locus of control scores. Discussions of the entire population and rural vs. urban independent variable differences and how the findings relate to past research are below.

Age. Lachman (1986) tested the hypothesis that older adults desire less control than younger adults, but found that there were no differences in internal health locus of

control beliefs between younger and older adults. The current study found no significant relationship between age and health locus of control in either the whole population, rural population or urban population. These findings were consistent with the findings of Smith et al. (1988) who administered the Multidimensional Health Locus of Control Scale to 246 adults in a large southeastern city and found that there was no significant effect of age for internal health locus of control. These findings were also consistent with Marshall (1991) who conducted an analysis of internal health locus of control beliefs derived from 181 medical outpatients using the Multidimensional Health Locus of Control Scale, which revealed no association between age and internal health locus of control. Interestingly, a positive relationship was shown to exist between health locus of control scores and age in the whole population, the rural population and the urban population. This finding indicates that as a person's age increases their health locus of control becomes more internal and they believe that they have more control over their health.

Gender. Gender studies have shown that whether a person is a male or female could play a role in health locus of control beliefs (Duetz et al., 2003). The current study found a significant relationship between gender and health locus of control in the whole population and urban population. No significant relationship was found in the rural population. For the whole population and the urban population females scored higher on health locus of control indicating more internal health locus of control beliefs and a belief that they have more control of their health. These findings were consistent with Paxton and Sculthorpe (1999) who examined health locus of control beliefs as they pertain to

weight in an Australian community sample. The study showed that females perceived health to be more internally controlled than males (Paxton & Sculthorpe, 1999). The findings were not consistent with the findings of Eagan et al. (2009) who found in a study that included 2,166 American Indian women and 1,433 American Indian men that there was no difference between men and women for internal locus of control scores. Eagan et al. (2009) found that their findings were similar to those of previous health locus of control studies performed in other populations. The one major exception that Eagan et al. (2009) found was that men did not show a significantly higher internal health locus of control.

The findings of the current study also were not consistent with the findings of Buckelew et al. (1990) who used the Multidimensional Health Locus of Control Scale to study 160 subjects (67 male and 93 females) on the topic of health locus of control, gender differences and adjustment to persistent pain. Specifically, the results showed that there was no significant difference between males and females (Buckelew et al., 1990)). For this study, findings from the whole population and urban population revealed that females scored higher than males, indicating that they have a more internal health locus of control and believe that they have more control over their health. The opposite was seen in the rural population, as males scored higher than females indicating that they have a more internal health locus of control and believe that they have more control over their health. This occurrence could be explained by the changing family dynamic that exists in the more populated areas. It is common to see a growing percentage of single parent

homes where the mother is the sole provider. In these cases you would expect that females would take on an increased sense of control over various aspects of their lives.

Race/Ethnicity. Research in populations that have different demographic backgrounds has become common and very important in the understanding of the differences between diverse populations (O'Hea et al., 2009). The current study found a significant relationship between race/ethnicity and health locus of control in the rural population only. The current study did not find a significant relationship between race/ethnicity and health locus of control in the whole population and the urban population. Although the literature review did not reveal a study that examined race/ethnicity when comparing rural verses urban settings, there were studies examining race/ethnicity and health locus of control. Cohen and Azaiza, (2007) used the internal subscale of the Multidimensional Health Locus of Control Scale to survey 358 Jews and 162 Arabs ages 50-75 years. This study found that Jewish ethnicity was significantly related to internal health locus of control scores and Arab ethnicity was significantly related to external health locus of control scores (Cohen & Azaiza, 2007). These results may reflect differences between traditional and Western health beliefs and behaviors (Cohen & Azaiza, 2007). The Arab society is considered as a more traditional and collectivist society that does not stress individualism and personal responsibility the way the more westernized Jewish-Israeli society does (Cohen & Azaiza, 2007). Bremer et al. (1997) measured psychological adjustment and health related locus of control in 257 South African women both with and without breast cancer. The population that was tested was comprised of 83% black, 10% white, and 7% mixed ethnicities. The study

results revealed race to be significant and that black women scored significantly lower than the white women and the mixed ethnicities on the perception of internal locus of control (Bremer et al., 1997). In South Africa, the white population is generally more advantaged than the black population in the socioeconomic hierarchy (Bremer et al., 1997). The results indicate that ethnicity and social structure have a substantial impact on beliefs about ability to control one's health (Bremer, et al., 1997).

Household income. One of the most influential contributors to the measure of socioeconomic status is the level of household income. Previous studies agreed that people with low socioeconomic status tend to have more external scores and people with high socioeconomic status tend to have more internal scores (Kuwahara et al., 2004). The current study found a significant relationship between household income and health locus of control in the rural population only. Interestingly, a positive relationship was shown to exist in the rural area between health locus of control and household income. These finding indicates that as income increases health locus of control becomes more internal and people believe they have more control over their health. These findings were not consistent with the findings of Poortinga et al. (2007) who analyzed the data from a 2001 survey conducted in Caerphilly county, southeast Wales, United Kingdom. The analysis of the 12,408 surveys showed that there were clear socio-economic differences in health locus of control beliefs (Poortinga et al., 2007). The findings of the current study were consistent with the findings of Lachman and Weaver (1998) who examined social class differences, sense of control and level of health. Lachman and Weaver (1998) found that

lower social class was associated with less sense of control and poor health and higher social class was associated with more sense of control and better health.

Size of household. Size of household is often included as a contributor to the measure of socioeconomic status. Size of household was not found to be significantly related to health locus of control in the whole population, the rural population or the urban population, however, all three populations did show an inverse relationship between size of the household and health locus of control. This finding indicates that as a person's size of household increases their health locus of control becomes more external and they believe that they have less control over their health. Lanjouw and Ravallion (1995) found that there is considerable evidence of a strong negative correlation between household size and household income in developing countries. This indicates that as the size of household increases the level of socioeconomic status decreases. Therefore, the findings of the current study were consistent with the findings of Shrauger and Silverman (1971) that included socioeconomic status into their study concerning the relationship of religious background and locus of control. Shrauger and Silverman (1971) found that there was evidence that suggested that people from lower socioeconomic groups perceive a more external locus of control. The findings are not consistent with the findings of Poortinga et al. (2007) who analyzed the data from a 2001 survey conducted in southeast Wales, United Kingdom. The data indicated that people with lower socio-economic status score more internal on the Multidimensional Health Locus of Control Scale (Poortinga et al., 2007).

Level of education. Along with household income, level of education is also an influential contributor to the measure of socioeconomic status. Smith et al. (1988) found that level of education was significant for internal health locus of control scores. According to Smith et al. (1988) this indicated that people with more education expected and desired more control. The current study found a significant inverse relationship between level of education and health locus of control in the rural population only. This finding for the rural population was not consistent with the findings of Eagan et al. (2009) who studied a sample of an American Indian population that included 3,599 men and women. The study concluded that years of education were not associated with internal health locus of control (Eagan et al., 2009). It was an interesting finding that the rural population, the urban population and the whole population showed an inverse relationship between level of education and health locus of control. This finding indicates that as a person's level of education increases their health locus of control becomes more internal and they believe that they have more control over their health.

Spirituality. Wallston et al. (1999) suggested that it is likely that religion may be a source of control-related cognition because it can either empower a person to take control or take away the belief that control is necessary. Whereas, Stein et al. (1984) believed that the roll of religion is an important cross-cultural variable in health locus of control research because of the influence that religion and cultuture have on a person's beliefs. The current study found a significant relationship between spirituality and health locus of control in the whole population only, which suggests that as a person's spirituality increases so does their internal locus of control and their belief that they have

more control over their health. These finding were consistent with the findings of Caplin et al. (2001) and Wallston et al. (1999) who both found that a stronger belief in God was a source of increased internal health-related control. These findings were not consistent with Ai et al. (2005) who used the Multidimensional Health Locus of Control Scale to explore the relationship between faith factors and internal health locus of control beliefs. Ai et al. (2005) found that greater internal control was negatively related to subjective religiosity.

In the current study the key findings revealed that the predictors of health locus of control for the population as a whole were gender and spirituality. The predictors of health locus of control for the rural population were race/ethnicity, household income and level of education. The only predictor of health locus of control for the urban population was gender. The findings in the current study were not what was expected. The current study was expected to find results similar to previous rural/urban studies where age, gender, race/ethnicity, socioeconomic status, and spirituality were significantly associated to health beliefs in rural and urban populations.

Research Question 6: Do locus of control and health locus of control have common predictors for the rural population?

Research Question 7: Do locus of control and health locus of control have common predictors for the urban population?

These questions are discussed by first reviewing past research on locus of control predictors for rural and urban populations, and then reviewing the findings of the current

study as associated with the health locus of control predictors reported above and with supporting literature.

When examining predictors for the locus of control, Zimmerman (2009) found that the set of seven independent variables (age, gender, race, household income, size of household, level of education, and spirituality) was significant for the rural and urban populations. For the rural group, the variables explained 22.4% of the locus of control scores as compared to a slightly lower percentage of 20.1% for the urban group. As mentioned, the health locus of control findings for the rural and urban populations revealed that the set of independent variables was significant and explained 24.0% of the rural scores and 23.2% of the urban scores. Discussions of the rural vs. urban independent variable differences for the locus of control and how the findings relate to past research are below.

Age. Age was shown to be a poor predictor of locus of control in past studies (Lachman, 1986). Lachman (1986) found that results of 14 different studies concerning age and locus of control revealed findings that were very inconsistent. Zimmerman (2009) found no significant relationship between age and locus of control in either the rural or urban populations. Interestingly, an inverse relationship was shown to exist between locus of control scores and age, indicating that as a person gets older their locus of control becomes more internal (Zimmerman, 2009). This finding is consistent with studies conducted by Backman et al. (1978), Cairns et al. (1990), and Lachman (1986) who found that there are possible correlations between age ranges and a person's perception of control. This finding suggests that as a person ages they are more likely to

acknowledge the importance of external sources of control while at the same time preserving their sense of internal control (Lachman, 1986).

Gender. In the past the results of the studies that were conducted concerning gender differences and locus of control have varied considerably (Chub et al. 1997). Zimmerman (2009) found that gender was the only independent variable that was significant in both the rural and urban populations. Females in the rural population showed higher locus of control scores than males in the same area (Zimmerman, 2009). This indicates that the rural females have a more external locus of control than the males. Males in the urban population showed higher locus of control scores than females in the same area (Zimmerman, 2009). This indicates that the urban males have a more external locus of control than the females. This finding did not support the findings of Archer and Waterman's (1988) study that reviewed the results of 22 previous studies that compared gender differences on several variables including locus of control. Archer and Waterman (1988) found that 15 of the 22 studies showed no gender differences concerning locus of control. Archer and Waterman's (1988) findings are consistent with other research on this construct where males and females appear to show the same steady increase over time in their sense of empowerment (Chub et al. 1997). As a person's locus of control becomes more internal they feel as though they become more empowered. As a person's locus of control becomes more external they feel as though they lose empowerment. The current study shows that gender differences can be used as a reliable predictor of locus of control. A greater understanding of gender as a predictor of locus of control gives us the understanding that these two different populations may have different sets of needs.

Race/Ethnicity. In past studies race and ethnicity appear frequently as a predictor of locus of control. Zimmerman (2009) found no significant relationship between race/ethnicity and locus of control. Lefcourt and Ladwig (1965) made the assumption that perception of personal control will vary remarkably by ethnicity. This assumption was based on the existence of sufficiently different social learning contexts that exist between races (Lefcourt & Ladwig, 1965). The lack of significant findings concerning race and locus of control in this study does not support Lefcourt and Ladwig's (1965) assumption. One possible reason for the inconsistent findings in the current study is that the social learning contexts may not be significantly different between races in the two populations being tested. Another possible reason for the inconsistent findings in the current study is that racial culture has changed drastically over the past forty years and social learning context might have been affected by the changes.

Household income. In past research, there was evidence that suggested that people from lower socioeconomic groups perceive a more external locus of control (Shrauger & Silverman, 1971). Household income, size of household and level of education are used as common predictors of socioeconomic status. For the urban population Zimmerman (2009) found that household income was significant in explaining locus of control scores. Specifically, household income showed a significant inverse relationship in this population indicating that as the level of reported income increased the participant's locus of control became more internal (Zimmerman, 2009). Although the rural population did not show a significant relationship between household income and locus of control scores, Zimmerman's (2009) findings did reveal an inverse

relationship. This is similar to the findings in the urban population, but with less significance, where as the level of reported income increased the participant's locus of control became more internal (Zimmerman, 2009). A more internal locus of control means that they feel like they have more control over events in their lives. These results concerning the significant relationship in the urban population and the inverse relationships in the urban and rural populations are consistent with Husaini and Neff's (1981) findings that locus of control is related to social class. Husaini and Neff (1981) suggest that as a person's social class increases, their locus of control becomes more internal. Zimmerman (2009) shows that household income can be used as a reliable predictor of locus of control in the urban population. A greater understanding of how household income affects locus of control in urban areas gives us a better understanding of the needs of the urban residents (Abuzar, 1999).

Size of household. Although size of household was not found to be significantly related to locus of control in either the rural or urban population by Zimmerman (2009), both populations did show a positive relationship between size of the household and locus of control. This suggests that as the size of household increases the person's locus of control becomes more external. Size of household is often used in research to determining socioeconomic status or social class and finding research that attempted to directly relate size of household and locus of control has proven to be very difficult. Husaini and Neff's (1981) findings that locus of control was related to social class does show some consistency with the findings in the current study. Husaini and Neff (1981)

made the conclusion that observed social class differences may arise from the differences in coping styles between certain social classes.

Level of education. In the rural area, Zimmerman (2009) found that level of education was not significant in predicting locus of control but the current study did find a positive relationship between level of education and locus of control. This suggests that as the level of education achieved increases in the rural population the peoples' locus of control is more external or they feel as though they have less control. In the urban area, Zimmerman (2009) found that the level of education was also insignificant in predicting locus of control. There was no positive or inverse relation ship found to exist in this population (Zimmerman, 2009). The findings in the current study did not support the findings of Boss and Taylor (1989) where students in the advanced level school programs had a more internal locus of control than the students in general or basic level programs.

Spirituality. Appearing much less frequently than the other predictors of locus of control, spirituality has shown very little consistency in predicting locus of control. Zimmerman (2009) did not show that spirituality was a significant predictor of locus of control for the rural or urban populations. In addition, spirituality showed no positive or inverse relationship with locus of control scores (Zimmerman, 2009). These findings are consistent with the findings in Fiori et al. (2006) and Dein and Stygal (1997) where it was proposed that spirituality can have either a positive or negative effect on a person's perception of control depending on an individual's personal attribution.

For the current study, a comparison was made between rural locus of control scores and rural health locus of control scores to determine if the rural population had

common predictors for the two measures. The analysis revealed no common predictors, as gender was the only significant predictor for locus of control and race, income, and education were significant predictors for health locus of control. A comparison was also made between urban locus of control scores and urban health locus of control scores to determine if the urban population had common predictors for the two measures. The analysis for the urban population revealed one common predictor, as gender was significant for both health locus of control and locus of control. Income was significant for locus of control only.

The results of the current study show that there is a relationship between general locus of control and health locus of control beliefs, however it is difficult to find predictors that are accurate in forecasting general locus of control and health locus of control beliefs. One possible reason for the difficulty is that within the population being tested the factors that contribute to learning these beliefs may be more fractionated than previously thought. When isolated, common predictors such as age, socioeconomic status and spirituality may not be sufficient in explaining the origin of socially learned beliefs. Many of the predictors included in the current study as well as numerous possible predictors that were not included in the current study may play a role as small contributors that add up to form a person's beliefs about control.

Conclusions

Social learning theorists began using locus of control more than forty years ago to explain beliefs and behaviors in a very general way. Since that time Rotter's locus of control scale has become one of the most common tools used to understand, predict and

modify beliefs and behaviors (Beretvas, Suizzo, Durham & Yarnell, 2008). The use of Rotter's locus of control scale has branched out into research in a broad number of fields including health. As metropolitan areas continue to grow and the differences between urban and rural areas become even greater we find the need to better understand the differences and special needs of the diverse populations. The current study used the Multidimensional Health Locus of Control Scale and Rotter's Internal-External Locus of Control Scale to uncover some of the differences. Past research has shown that general locus of control beliefs can be used to predict health related behavior (Strickland, 1978), however there are limited studies available that make a direct comparison between Rotter's Locus of Control Scale and the Multidimensional Health Locus of Control Scale. It is common to find that the people who are either internal or external on general locus of control will have similar beliefs on domain specific topics. If they are the type of person who believes that they are not in control of their general life then they will also believe that they are not in control of their finances, their career, or their health.

The rural and urban areas in western Tennessee have vastly different populations; however they both have factors that contribute to health problems and their beliefs about health. Both populations have areas with low income and lower levels of education. These types of factors have been known to lead to a more external general locus of control and health locus of control. In both the rural and urban areas of western Tennessee the idea of health is a concept that could be socially learned. If a person's family and friends have a limited history of preventative behaviors and a significant history of health problems, it is considered normal for that person to follow the same

behavioral pattern and have similar results. The rural area in western Tennessee is mainly populated by people who are either blue collar workers or agricultural workers. The people who fit into this demographic usually value the ability to stay healthy enough to do their job but rarely take control and get involved in preventative behaviors. The urban area in western Tennessee has a much more diverse population. The population ranges from the very wealthy upper socioeconomic status to the very poor lower socioeconomic status. The people in the upper socioeconomic status have a history of taking control of their health and getting involved in preventative behaviors. The people in the lower socioeconomic status have a history of not taking control of their health and as a result their health suffers. If you take a cross section of the urban population it is likely that the two ends of the spectrum have a tendency to cancel each other out which produces a finding similar to what you find in the rural area.

In the urban areas gender roles seem to be changing at a faster pace than they are in the rural areas. Single parent homes and dual income families are reshaping the expectations and beliefs that males and females have. No longer is it expected that the male is the provider and the female is the care giver. The females are expected to make larger contributions and this could lead to a change in the way the females perceive their ability to control life events.

Today people are more transient than they use to be and this may be one specific factor that may have influenced the results of the study. It was difficult to determine if a person who was involved with the study was correctly labeled “rural” or “urban” based of their zip code alone. People move from one area to the other for various reasons. People

also make daily commutes over long distances for employment, schools, or to be close to family. In addition, the meaning of the terms "rural" and "urban" are heavily contested. The definitions seem to be subject to change based on the needs of a study. Furthermore, the idea of what a rural or urban area is seems to be very dissimilar in different parts of the country and even more diverse in different parts of the world. One thing that seems to be less contested is that once an area is labeled rural or urban it is treated as having specific needs that may not be the same as its counterpart.

There is still much to learn about locus of control and health locus of control as they relate to different populations. The current study explored several possible predictors of locus of control and health locus of control in the two diverse populations. Understanding these predictors gives us further insight into the specific needs of the different populations so that interventions may be tailored to the specific needs of the people.

Implications for Further Research

Future research can expand on this study by investigating how rural and urban areas in other parts of the country score on the same health locus of control and general locus of control scales. Furthermore, future research could investigate additional predictors. For example, more specific information could be included such as, religious denomination, single or double parent households, or criminal history. Further exploration would also be beneficial in how rural and urban areas score on other domain specific locus of control scales, such as the God Locus of Control Scale (Wallston et al., 1999) or the Work Locus of Control scale (Spector, 1988). These findings could be

compared to the health locus of control scores and the general locus of control scores to give us further insight into trends in these two different populations.

Methodological Issues

During the classification of zip codes as either rural or urban there was a methodological issue uncovered. For the majority (26 of 30, 86.6 %) of zip codes provided on the surveys it was clear that they could be classified into a distinct urban or rural category. However, a small minority (4 of 30, 13.3 %) of zip codes were located between the rural and urban areas being surveyed. According to the United States Census Bureau (2000) these zip codes covered areas that were densely populated (urban population = 14,979) and areas that were sparsely populated (rural population = 16,458) that collectively had a population of 31,437. Specific addresses were not required on the survey, therefore participants could have been classified as either rural or urban. The participants that reported residence in these zip codes were classified as living in a rural area because these zip codes had a greater number of rural residents.

The two similar private business establishments that were chosen for the distribution of the surveys in the rural and urban areas were physicians' offices that are classified as complementary and alternative medicine. Current research has shown that complementary and alternative medicine is not widely utilized in the United States by people who are classified as low socioeconomic status (Mackenzie et al., 2003). Current research has also shown that complementary and alternative medicine is not widely utilized in the United States by races other than Asians and Caucasian (Mackenzie et al., 2003). Collecting data in the selected environments could have limited exposure to

African American participants and people who are classified as low socioeconomic status. These limitations would make the samples collected a poor reflection of the actual population.

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Appendix A

Rotter's Internal-External Locus of Control Questionnaire

Perception of Control

Questionnaire

Zip Code: _____

Age
☐ 18 to 30 ☐ 31 to 50 ☐ 51+

Gender
☐ M ☐ F

Race/Ethnicity
☐ White ☐ Black ☐ Hispanic ☐Asian ☐ Other

Yearly Household Income:
☐ $0 - $20,000 ☐ $20,001 – $50,000 ☐ $50,001 and Up

Number of people who live in your home
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ more than 6

Highest level of education completed
☐ Less than grade
☐ Some high school with no diploma
☐ High school diploma or GED
☐ Some college with no diploma
☐ Associates or Bachelor's degree
☐ Graduate or professional degree

Spirituality
I consider God and/or spirituality to be a very important part of my life.

☐ 1=Strongly Disagree
☐ 2=Moderately Disagree
☐ 3=Slightly Disagree
☐ 4=Slightly Agree
☐ 5=Moderately Agree
☐ 6=Strongly Agree

****Please do NOT write your name on the questionnaire****

Perception of Control Questionnaire

SECTION 1: Instructions

1. Please read each pair of statements below.
2. Circle the letter (A or B) of the one that most closely matches **your own personal belief**.
3. It is important that you do not skip any questions.
4. Please answer **EVERY ITEM** and circle **ONLY ONE** letter (A or B) per item.

1.	A	Children get into trouble because their parents punish them too much.
	B	The trouble with most children nowadays is that their parents are too easy with them.
2.	A	Many of the unhappy things in people's lives are partly due to bad luck.
	B	People's misfortunes result from the mistakes they make.
3.	A	One of the major reasons why we have wars is because people don't take enough interest in politics.
	B	There will always be wars, no matter how hard people try to prevent them.
4.	A	In the long run people get the respect they deserve in this world.
	B	Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5.	A	The idea that teachers are unfair to students is nonsense.
	B	Most students don't realize the extent to which their grades are influenced by accidental happenings.
6.	A	Without the right breaks one cannot be an effective leader.
	B	Capable people who fail to become leaders have not taken advantage of their opportunities.
7.	A	No matter how hard you try some people just don't like you.
	B	People who can't get others to like them don't understand how to get along with others.
8.	A	Heredity plays the major role in determining one's personality.
	B	It is one's experiences in life which determine what they're like.
9.	A	I have often found that what is going to happen will happen.
	B	Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10.	A	In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
	B	Many times exam questions tend to be so unrelated to course work that studying in really useless.
11.	A	Becoming a success is a matter of hard work, luck has little or nothing to do with it.
	B	Getting a good job depends mainly on being in the right place at the right time.
12.	A	The average citizen can have an influence in government decisions.

	B	This world is run by the few people in power, and there is not much the little guy can do about it.
13.	A	When I make plans, I am almost certain that I can make them work.
	B	It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
14.	A	There are certain people who are just no good.
	B	There is some good in everybody.
15.	A	In my case getting what I want has little or nothing to do with luck.
	B	Many times we might just as well decide what to do by flipping a coin.
16.	A	Who gets to be the boss often depends on who was lucky enough to be in the right place first.
	B	Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
17.	A	As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
	B	By taking an active part in political and social affairs the people can control world events.
18.	A	Most people don't realize the extent to which their lives are controlled by accidental happenings.
	B	There really is no such thing as "luck."
19.	A	One should always be willing to admit mistakes.
	B	It is usually best to cover up one's mistakes.
20.	A	It is hard to know whether or not a person really likes you.
	B	How many friends you have depends upon how nice a person you are.
21.	A	In the long run the bad things that happen to us are balanced by the good ones.
	B	Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
22.	A	With enough effort we can wipe out political corruption.
	B	It is difficult for people to have much control over the things politicians do in office.
23.	A	Sometimes I can't understand how teachers arrive at the grades they give.
	B	There is a direct connection between how hard 1 study and the grades I get.
24.	A	A good leader expects people to decide for themselves what they should do.
	B	A good leader makes it clear to everybody what their jobs are.
25.	A	Many times I feel that I have little influence over the things that happen to me.
	B	It is impossible for me to believe that chance or luck plays an important role in my life.
26.	A	People are lonely because they don't try to be friendly.

	B	There's not much use in trying too hard to please people, if they like you, they like you.
27.	A	There is too much emphasis on athletics in high school.
	B	Team sports are an excellent way to build character.
28.	A	What happens to me is my own doing.
	B	Sometimes I feel that I don't have enough control over the direction my life is taking.
29.	A	Most of the time I can't understand why politicians behave the way they do.
	B	In the long run the people are responsible for bad government on a national as well as on a local level.

Appendix B

Multidimentional Heath Locus of Control Questionnaire

SECTION 2: Instructions

1. Below are belief statements about your health with which you may agree or disagree.
2. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (6).
3. For each item, please circle the number that represents your level of agreement with that statement.
4. The more you agree with a statement, the higher will be the number you circle.
5. The more you disagree with a statement; the lower will be the number you circle.
6. Please answer **EVERY ITEM** and circle **ONLY ONE** number per item.
7. This is a measure of your personal beliefs; obviously, there are no right or wrong answers.

Rating Scale	
1=Strongly Disagree (SD) 2=Moderately Disagree (MD) 3=Slightly Disagree (D)	4=Slightly Agree (A) 5=Moderately Agree (MA) 6=Strongly Agree (SA)

		SD	MD	D	A	MA	SA
1	If I get sick, it is my own behavior which determines how soon I get well again.	1	2	3	4	5	6
2	No matter what I do, if I am going to get sick, I will get sick.	1	2	3	4	5	6
3	Having regular contact with my physician is the best way for me to avoid illness.	1	2	3	4	5	6
4	Most things that affect my health happen to me by accident.	1	2	3	4	5	6
5	Whenever I don't feel well, I should consult a medically trained professional.	1	2	3	4	5	6
6	I am in control of my health.	1	2	3	4	5	6
7	My family has a lot to do with my becoming sick or staying healthy.	1	2	3	4	5	6
8	When I get sick, I am to blame.	1	2	3	4	5	6
9	Luck plays a big part in determining how soon I will recover from an illness.	1	2	3	4	5	6
10	Health professionals control my health.	1	2	3	4	5	6
11	My good health is largely a matter of good fortune.	1	2	3	4	5	6
12	The main thing which affects my health is what I myself do.	1	2	3	4	5	6
13	If I take care of myself, I can avoid illness.	1	2	3	4	5	6

14	Whenever I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.	1	2	3	4	5	6
15	No matter what I do, I 'm likely to get sick.	1	2	3	4	5	6
16	If it's meant to be, I will stay healthy.	1	2	3	4	5	6
17	If I take the right actions, I can stay healthy.	1	2	3	4	5	6
18	Regarding my health, I can only do what my doctor tells me to do.	1	2	3	4	5	6

Appendix C

Descriptive Statistics

Locus of Control

Table

Locus of Control Results by Rural and Urban Populations.

Item		Internal Locus of Control = 0 and External Locus of Control = 1	*Group*	*f*	*%*	Item Mean (SD)
2.	A	Many of the unhappy things in people's lives are partly due to bad luck. (1)	Rural	14	17.7	
			Urban	19	24.7	
	B	People's misfortunes result from the mistakes they make. (0)	Rural	65	82.3	
			Urban	58	75.3	
			Rural			.17 (.384)
			Urban			.25 (.434)
3.	A	One of the major reasons why we have wars is because people don't take enough interest in politics. (0)	Rural	13	16.5	
			Urban	32	41.6	
	B	There will always be wars, no matter how hard people try to prevent them. (1)	Rural	66	83.5	
			Urban	45	58.4	
			Rural			.84 (.373)
			Urban			.58 (.496)
4.	A	In the long run people get the respect they deserve in this world. (0)	Rural	30	38.0	
			Urban	44	57.1	
	B	Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries. (1)	Rural	49	62.0	
			Urban	33	42.9	
			Rural			.62 (.488)
			Urban			.43 (.498)
5.	A	The idea that teachers are unfair to students is nonsense. (0)	Rural	48	60.8	
			Urban	53	68.8	
	B	Most students don't realize the extent to which their grades are influenced by accidental happenings. (1)	Rural	31	39.2	
			Urban	24	31.2	
			Rural			.39 (.491)
			Urban			.31 (.466)

Table Continued

Item		**Internal Locus of Control = 0 and External Locus of Control = 1**	***Group***	***f***	***%***	**Item Mean (SD)**
6.	A	Without the right breaks one cannot be an effective leader. (1)	Rural	17	21.5	
			Urban	21	27.3	
	B	Capable people who fail to become leaders have not taken advantage of their opportunities. (0)	Rural	62	78.5	
			Urban	56	72.7	
			Rural			.22 (.414)
			Urban			.27 (.448)
7.	A	No matter how hard you try some people just don't like you. (1)	Rural	56	70.9	
			Urban	49	63.6	
	B	People who can't get others to like them don't understand how to get along with others. (0)	Rural	23	29.1	
			Urban	28	36.4	
			Rural			.71 (.457)
			Urban			.64 (.484)
9.	A	I have often found that what is going to happen will happen. (1)	Rural	26	32.9	
			Urban	27	35.1	
	B	Trusting to fate has never turned out as well for me as making a decision to take a definite course of action. (0)	Rural	53	67.1	
			Urban	50	64.9	
			Rural			.33 (.473)
			Urban			.35 (.480)
10.	A	In the case of the well prepared student there is rarely if ever such a thing as an unfair test.	Rural	60	75.9	
			Urban	55	71.4	
	B	Many times exam questions tend to be so unrelated to course work that studying in really useless.	Rural	19	24.1	
			Urban	22	28.6	
			Rural			.24 (.430)
			Urban			.29 (.455)
11.	A	Becoming a success is a matter of hard work, luck has little or nothing to do with it.	Rural	61	77.2	
			Urban	59	76.6	
	B	Getting a good job depends mainly on being in the right place at the right time.	Rural	18	22.8	
			Urban	18	23.4	

Table Continued

Item		Internal Locus of Control = 0 and External Locus of Control = 1	*Group*	*f*	*%*	Item Mean (SD)
			Rural			.23 (.422)
			Urban			.23 (.426)
12.	A	The average citizen can have an influence in government decisions. (0)	Rural	53	67.1	
			Urban	39	50.6	
	B	This world is run by the few people in power, and there is not much the little guy can do about it. (1)	Rural	26	32.9	
			Urban	38	49.4	
			Rural			.33 (.473)
			Urban			.49 (.503)
13.	A	When I make plans, I am almost certain that I can make them work. (0)	Rural	67	84.8	
			Urban	48	62.3	
	B	It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow. (1)	Rural	12	15.2	
			Urban	29	37.7	
			Rural			.15 (.361)
			Urban			.38 (.488)
15.	A	In my case getting what I want has little or nothing to do with luck. (0)	Rural	67	84.8	
			Urban	62	80.5	
	B	Many times we might just as well decide what to do by flipping a coin. (1)	Rural	12	15.2	
			Urban	15	19.5	
			Rural			.15 (.361)
			Urban			.19 (.399)
16.	A	Who gets to be the boss often depends on who was lucky enough to be in the right place first. (1)	Rural	11	13.9	
			Urban	14	18.2	
	B	Getting people to do the right thing depends upon ability, luck has little or nothing to do with it. (0)	Rural	68	86.1	
			Urban	63	81.8	
			Rural			.14 (.348)
			Urban			.18 (.388)
17.	A	As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control. (1)	Rural	37	46.8	
			Urban	37	48.1	

Table Continued

Item		Internal Locus of Control = 0 and External Locus of Control = 1	*Group*	*f*	*%*	Item Mean (SD)
	B	By taking an active part in political and social affairs the people can control world events. (0)	Rural	42	53.2	
			Urban	40	51.9	
			Rural			.47 (.502)
			Urban			.48 (.503)
18.	A	Most people don't realize the extent to which their lives are controlled by accidental happenings. (1)	Rural	45	57.0	
			Urban	38	49.4	
	B	There really is no such thing as "luck." (0)	Rural	34	43.0	
			Urban	39	50.6	
			Rural			.57 (.498)
			Urban			.49 (.503)
20.	A	It is hard to know whether or not a person really likes you. (1)	Rural	37	46.8	
			Urban	34	44.2	
	B	How many friends you have depends upon how nice a person you are. (0)	Rural	42	53.2	
			Urban	43	55.8	
			Rural			.47 (.502)
			Urban			.44 (.500)
21.	A	In the long run the bad things that happen to us are balanced by the good ones. (1)	Rural	36	45.6	
			Urban	30	39.0	
	B	Most misfortunes are the result of lack of ability, ignorance, laziness, or all three. (0)	Rural	43	54.4	
			Urban	47	61.0	
			Rural			.46 (.501)
			Urban			.39 (.491)
22.	A	With enough effort we can wipe out political corruption. (0)	Rural	29	36.7	
			Urban	34	44.2	
	B	It is difficult for people to have much control over the things politicians do in office. (1)	Rural	50	63.3	
			Urban	43	55.8	
			Rural			.63 (.485)
			Urban			.56 (.500)

Table Continued

Item		Internal Locus of Control = 0 and External Locus of Control = 1	*Group*	*f*	*%*	Item Mean (SD)
23.	A	Sometimes I can't understand how teachers arrive at the grades they give. (1)	Rural	11	13.9	
			Urban	21	27.3	
	B	There is a direct connection between how hard 1 study and the grades I get. (0)	Rural	68	86.1	
			Urban	56	72.7	
			Rural			.14 (.348)
			Urban			.27 (.448)
25.	A	Many times I feel that I have little influence over the things that happen to me.	Rural	26	32.9	
			Urban	23	29.9	
	B	It is impossible for me to believe that chance or luck plays an important role in my life.	Rural	53	67.1	
			Urban	54	70.1	
			Rural			.33 (.473)
			Urban			.30 (.460)
26.	A	People are lonely because they don't try to be friendly.	Rural	36	45.6	
			Urban	46	59.7	
	B	There's not much use in trying too hard to please people, if they like you, they like you.	Rural	43	54.4	
			Urban	31	40.3	
			Rural			.54 (.501)
			Urban			.40 (.493)
28.	A	What happens to me is my own doing. (0)	Rural	51	64.6	
			Urban	46	59.7	
	B	Sometimes I feel that I don't have enough control over the direction my life is taking. (1)	Rural	59	74.7	
			Urban	31	40.3	
			Rural			.35 (.481)
			Urban			.40 (.493)
29.	A	Most of the time I can't understand why politicians behave the way they do. (1)	Rural	48	60.8	
			Urban	45	58.4	
	B	In the long run the people are responsible for bad government on a national as well as on a local level. (0)	Rural	31	39.2	
			Urban	32	41.6	
			Rural			.61 (.491)
			Urban			.58 (.496)

Appendix D

Descriptive Statistics

Health Locus of Control

Table

Health Locus of Control Results by Rural and Urban Populations.

Item	***Rural*** ***Mean (SD)***	***Rural*** ***N (%)***	***Urban*** ***Mean (SD)***	***Urban*** ***N (%)***
1) If I get sick, it is my own behavior which determines how soon I get well again.	4.7 (1.2)		4.6 (1.4)	
Strongly Agree (6)		25 (31.6)		24 (31.2)
Moderately Agree (5)		26 (32.9)		25 (32.5)
Slightly Agree (4)		15 (19.0)		16 (20.8)
Slightly Disagree (3)		10 (12.7)		3 (3.9)
Moderately Disagree (2)		2 (2.5)		6 (7.8)
Strongly Disagree (2)		1 (1.3)		3 (3.9)
6) I am in control of my health.	4.6 (1.1)		4.9 (1.1)	
Strongly Agree (6)		19 (24.1)		26 (33.8)
Moderately Agree (5)		28 (35.4)		25 (32.5)
Slightly Agree (4)		20 (25.3)		16 (20.8)
Slightly Disagree (3)		8 (10.1)		9 (11.7)
Moderately Disagree (2)		3 (3.8)		1 (1.3)
Strongly Disagree (2)		1 (1.3)		0 (0.0)
8) When I get sick, I am to blame.	2.6 (1.3)		3.3 (1.4)	
Strongly Agree (6)		1 (1.3)		8 (10.4)
Moderately Agree (5)		5 (6.3)		7 (9.1)
Slightly Agree (4)		14 (17.7)		10 (13.0)
Slightly Disagree (3)		23 (29.1)		33 (42.9)
Moderately Disagree (2)		16 (20.3)		13 (16.9)
Strongly Disagree (2)		20 (25.3)		6 (7.8)

Table

Health Locus of Control Results by Rural and Urban Populations.

Item	*Rural* *Mean (SD)*	*Rural* *N (%)*	*Urban* *Mean (SD)*	*Urban* *N (%)*
12) The main thing which affects my health is what I myself do.	5.1 (1.0)		5.1 (1.1)	
Strongly Agree (6)		34 (43.0)		35 (45.5)
Moderately Agree (5)		27 (34.2)		24 (31.2)
Slightly Agree (4)		11 (13.9)		13 (16.9)
Slightly Disagree (3)		7 (8.9)		3 (3.9)
Moderately Disagree (2)		0 (0.0)		1 (1.3)
Strongly Disagree (2)		0 (0.0)		1 (1.3)
13) If I take care of myself, I can avoid illness.	4.8 (.9)		4.9 (1.1)	
Strongly Agree (6)		20 (25.3)		31 (40.3)
Moderately Agree (5)		33 (41.8)		23 (29.9)
Slightly Agree (4)		19 (24.1)		15 (19.5)
Slightly Disagree (3)		6 (7.6)		5 (6.5)
Moderately Disagree (2)		1 (1.3)		2 (2.6)
Strongly Disagree (2)		0 (0.0)		1 (1.3)
17) If I take the right actions, I can stay healthy.	4.9 (1.0)		4.8 (1.2)	
Strongly Agree (6)		1 (1.3)		24 (31.2)
Moderately Agree (5)		0 (0.0)		28 (36.4)
Slightly Agree (4)		17 (21.5)		14 (18.2)
Slightly Disagree (3)		0 (0)		8 (10.4)
Moderately Disagree (2)		67 (82)		2 (2.6)
Strongly Disagree (2)		(82)		1 (1.3)

Appendix E
Consent Form

Perception of Control Questionnaire

I would appreciate your assistance with this research project that concerns perceptions of control in urban verses rural populations. The project is being conducted by Mark Zimmerman from the University of Memphis, College of Education Department of Instruction & Curriculum Leadership as a part of a research project under the direction of Dr. Deborah Lowther. The research will help us understand the individual needs of urban and rural populations.

All you need to do is complete this questionnaire, which should take approximately 10-12 minutes. Your participation is voluntary. If you do not wish to participate, please tell the proctor at this time. Responses will be completely anonymous; your name will not appear anywhere on the questionnaire or in any reports of the findings. Completing and submitting the questionnaire constitutes your consent to participate. If you have any questions regarding the research, contact Mark Zimmerman, (drmzimmerman@gmail.com) or Dr. Deborah Lowther (@memphis.).

This study has been reviewed and approved through the University of Memphis Office of Research Support Services. If you have any questions regarding your rights as a research subject, please contact the Office of Research Support Services at the University of Memphis, (901) 678-2840.